MEMO. Date 3-15-47

To Hospital Pharmacists

From JZ

RE: ATTACHED SHEET

Return to me ☐ See me personally ☐

For your file ☐ Furnish data requested ☐

For your information ☐ Secure full data ☐

Take action as indicated ☑ Express your judgment ☐

MESSAGE: M.....

of.....

Phoned / Called at.....o'clock A.M. / P.M. Phone.....

Message below.

What do you think? Follow through with blank to exec. sec.'s address noted on letterhead

JZ

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American Society of Hospital Phar

Affiliated With The
American Pharmaceutical Association

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EXECUTIVE SECRETARY
GLORIA F. NIEMEYER
2215 CONSTITUTION AVE., N.W.
WASHINGTON, D.C.

February 1947

Dear Hospital Pharmacist:

Organizations mean a lot.

To mean anything, they must be active and progressive.

As an affiliate of the A.Ph.A., the American Society of Hospital Pharmacists, for instance, is active and progressive. It is the only organization devoted exclusively to your interests.

Scan this issue of The Bulletin and you'll understand what is happening.

The Society had its inception just a few years ago with several objectives which you will find noted in The Bulletin insert. In fact, reading between the lines of these objectives they touch upon every phase that you would desire in an organization of your field.

By becoming a member, you may have my word that your contributions of opinions, experiences and support will be truly welcomed by us--and by "us" is meant well over a third of all hospital pharmacists in the United States and its possessions who have become members within the past two years.

Hospital pharmacists are reasonable individuals. Being human, we are prone to lay aside for "future action" something which at the moment is not pressing or apparently does not touch us personally.

Yet, it does touch you personally now.

So many important developments are in action or plans are in the offing, that you membership action may well determine the rate of advance of your specialty.

Very truly yours,

John J. Zugich

John J. Zugich
Chairman, Membership Committee

THE BULLETIN
OF THE

Volume 4 JANUARY-FEBRUARY 1947 Number 1

THE BULLETIN is published bimonthly by the American Society of Hospital Pharmacists, a national organization devoted to the profession of hospital pharmacy, dedicated to the interests of the hospital pharmacist, and pledged to co-operate with the American Pharmaceutical Association with which it is affiliated.

Contributions of articles by hospital pharmacists, or by others interested in the progress of this important branch of the public health profession, with be accepted if they are of general interest to the hospital pharmacist. The editors reserve the right to revise all material submitted, if necessary.

Manuscripts submitted for publication should be typewritten in double spacing on one side of paper 8 1/2 x 11". Whenever possible a photograph, drawing, or printed form to illustrate the topic that is discussed in the article should be included.

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CONTENTS

	Page
Correspondence	2
Progress In Hospital Pharmacy, An Editorial	3
Diisopropyl Fluorophosphate Leo F. Godley	4
Recent Advances In Therapeutic Agents Don E. Francke and Gloria F. Niemeyer	9
Therapeutic Trends	14
THE BULLETIN And Its Staff	16
Hospital Pharmacy Division Created	18
Current Literature	21
Economics of Parenteral Fluid Preparation J. R. Cathcart	22
Queries From Hospital Pharmacists	26
Notes And Suggestions	28
Book Reviews	30
Timely Drugs	31
The Veterans Administration Pharmacist	32
Useful Equipment For The Hospital Pharmacy	34
Pertinent Patents	36
News Items	38
Organization News	40
New Members	42
Positions In Hospital Pharmacy	44

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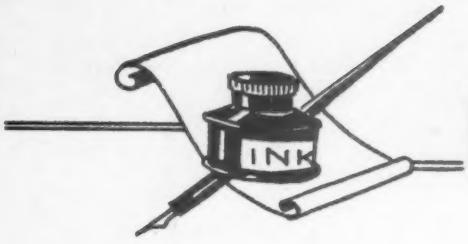


CORRESPONDENCE

Dear Sirs: Just a note to express our appreciation of THE BULLETIN and its up to the minute articles on new drugs. An incident happened recently which illustrates the value of these articles.

There was a patient in this hospital with Bichloride of Mercury poisoning. The doctors started treatment with BAL after reading the article on its action and use in the May-June 1946 issue; although up to that time there was a routine treatment using Sodium Formaldehyde Sulfoxylate.

Such fine articles in a pharmacy publication add to the prestige of the profession in the eyes of the doctors.

Alma Robertson
Staff Pharmacist

Saint Luke's Hospital
Cleveland, Ohio

Dear Sirs: I am pleased to acknowledge the receipt of your kind letter and of several of THE BULLETINS of your society. The bulletins were a real surprise. They must be an important help to the hospital pharmacists in the States. They show that hospital pharmacy is indeed a special branch of science and practice in the range of pharmacy. I am very glad to have them and I shall read them with great interest.

J. F. Kok
Director

Municipal Pharmacy for the
Hospitals of the Hague, The Netherlands

Dear Sirs: I read with interest every copy of THE BULLETIN, and I should like to express to you my congratulations on putting out an excellent publication. It is a journal of which the American Society of Hospital Pharmacists can well be proud.

Henry S. Johnson
President

American Ass'n. of Colleges of Pharmacy
University of Connecticut, College Pharmacy
New Haven.

Dear Sirs: In order to save you the trouble of writing to me and telling me that my dues from January 1947 to December 31, 1947 are due, I thought that it would assist you by sending them on in to you and keep in the good graces of the A.S.H.P. I will enclose a check for the dues.

The A.S.H.P. is a fine organization and I appreciate being a member of the society. The Institute at Ann Arbor last year was great and I enjoyed it fully.

Lewis S. Smith
Chief Pharmacist

Baylor University Hospital
Dallas, Texas.

Dear Sirs: Please send to the undersigned thirty membership application blanks for the American Pharmaceutical Association and a like number of blanks for the American Society of Hospital Pharmacists. These will be used for distribution to pharmacists in Veterans Administration Branch Area No. 3.

If this office can be of assistance to you in your work, do not hesitate to ask.

W. C Anderson, Chief
Pharmacy Division

VA Branch Office No. 3
Philadelphia 2, Pa.

Dear Sirs: I am enclosing a check for $8.00 with applications for membership in both the A. Ph.A and the A.S.H.P. These applications are the outcome of a phone call to Sister Etheldreda of St. Mary's Hospital, Brooklyn, N.Y. I have been interested in your Society for some time so Sister gave me information concerning the A.S.H.P. and other hospital pharmacists' organizations in the New York area.

George W. Annis

St. John's Hospital
Brooklyn, N.Y.

Dear Sirs: Please find enclosed a check for my 1947 dues to A.S.H.P. My address is changed. Although I am not working as a hospital pharmacist any longer, I am still very much interested in the activities and program of the Society. I certainly do enjoy THE BULLETIN and do find many items of special interest about my hospital friends in Ohio.

Mrs. Arthur D. Randolph
(formerly Gene Brown)

Hollywood 28, Calif.

EDITORIAL

The specialty of hospital pharmacy is rapidly taking its rightful place in the vanguard of American pharmacy. From a membership of 150 in 1943 to a present total of approximately 1000, indicates to some measure the extent of the growth of the American Society of Hospital Pharmacists. With this expansion has come a more active participation by hospital pharmacists in projects and activities related to the practice of pharmacy in hospitals.

INSTITUTE ON HOSPITAL PHARMACY

One of the forward steps in hospital pharmacy during the past year was the initiation of the Institute on Hospital Pharmacy. Filling a long-felt need, these refresher courses in hospital pharmacy may well be the medium through which the greatest advancement in the practice of hospital pharmacy is made possible. Representatives of the American Hospital Association, American Pharmaceutical Association and the American Society of Hospital Pharmacists are indeed to be congratulated for continuing these vital programs by scheduling a second institute to be held at the Continental Hotel, Chicago, May 19 to 23. Emphasizing the economics of the hospital pharmacy this institute promises an outstanding program which is a "must" for all progressive hospital pharmacists who can attend.

DIVISION OF HOSPITAL PHARMACY

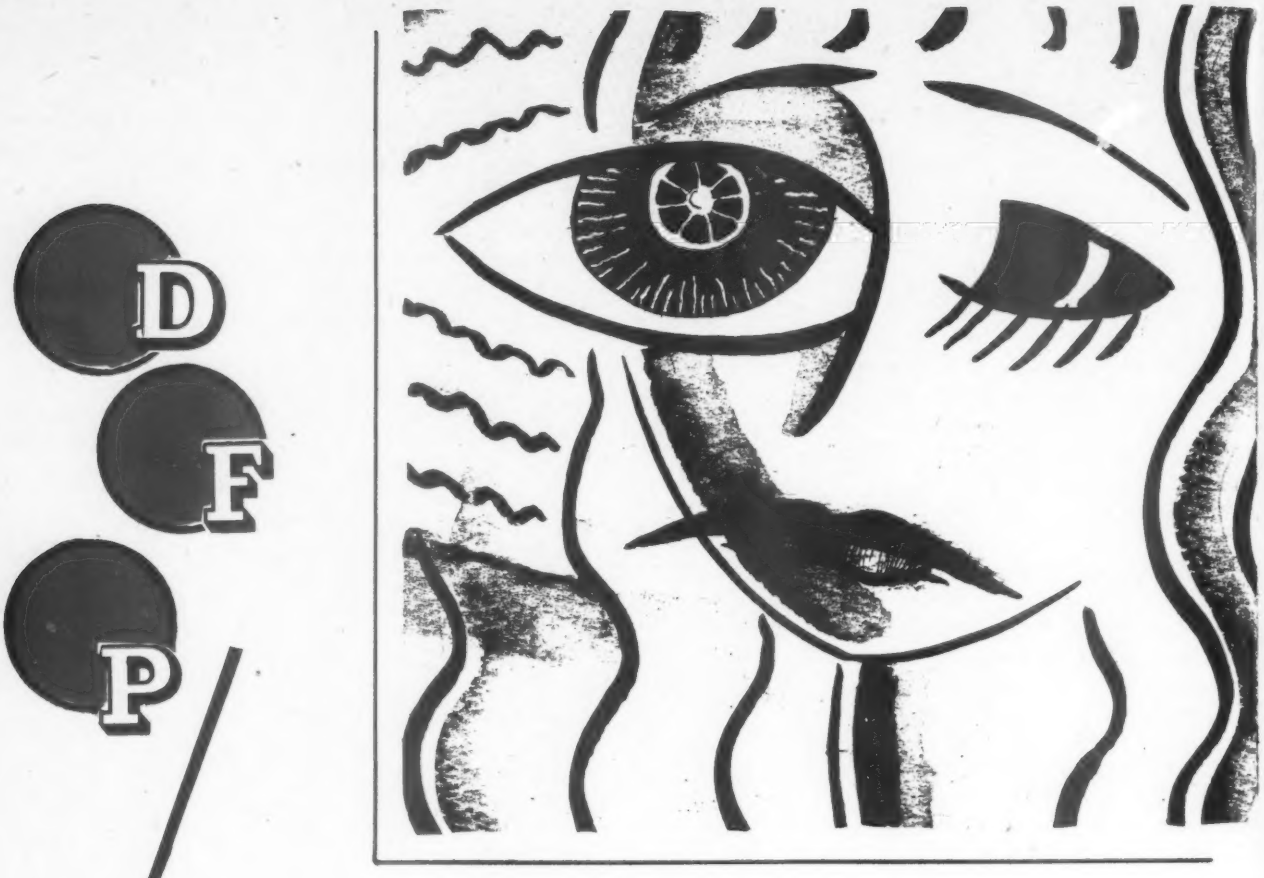
The hospital pharmacists of the nation have long sought to have the American Pharmaceutical Association take a more active interest in and to do something more concrete for hospital pharmacy. Such an objective seems certain of fulfillment with the establishment of the Division of Hospital Pharmacy. Providing a central office, an experienced staff and necessary funds, the newly created Division of Hospital Pharmacy will undertake the integration of hospital pharmacy activities between the American Society of Hospital Pharmacists and the American Pharmaceutical Association. Such an important step as the establishment of the Division of Hospital Pharmacy is bound to raise many questions in the minds of hospital pharmacists. Such questions are necessary and desirable if the Division is to fulfill its obligations. Let all hospital pharmacists bear in mind that the Division was established for their benefit and for the improvement of the practice of hospital pharmacy. It can succeed in its objectives only to the extent that it receives the support, suggestions, and cooperation of those whose interest it was created to serve.

PARTICIPATION IN HOSPITAL MEETINGS

Since in the final analysis it is the hospital administrators to whom hospital pharmacists must sell the program for better pharmacy service in hospitals, it is most encouraging that an ever increasing number of hospital association meetings find members of the American Society of Hospital Pharmacists taking a leading part in arranging and conducting those portions of the program emphasizing hospital pharmacy. For several years the progressive Ohio Society of Hospital Pharmacists has held its annual meeting with the Ohio Hospital Association. We understand that the Southeastern Hospital Pharmacists Association and the Hospital Pharmacists of the Midwest have followed a similar practice. Last year the Pharmacy section of the American Hospital Association Convention was under the chairmanship of a hospital pharmacist. This year members of the American Society of Hospital Pharmacists will play leading roles in the Pharmacy Sections of the important Tri-State assembly in Chicago and the New England Hospital Conference in Boston, certainly an indication that the pharmacy is becoming more and more recognized as an integral unit of the modern hospital.

HOSPITAL PHARMACY IN VETERANS ADMINISTRATION

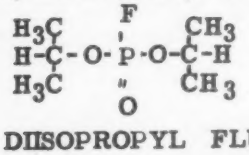
Without question the group of hospitals showing the greatest progress in providing better pharmacy service are those of the Veterans Administration. Under the able directorship of W. Paul Briggs, hospital pharmacists in the Veteran Administrations have risen to new heights of professional responsibility and esteem. In delineating the functions of Veterans Administration pharmacists (See this publication November-December 1946) Mr. Briggs has shown a splendid understanding of the role the hospital pharmacist should play in providing medical care. The increased professional responsibilities and the greater remuneration for the pharmacists in the Veterans Hospitals is bound to result in better pharmacy service. The effect of these reforms will not stop with the Veterans Hospitals but will surely be reflected to and influence the quality of pharmacy service in all hospitals.



by LEO F. GODLEY

Diisopropyl fluorophosphate (DFP), a powerful parasympathomimetic drug, was first prepared in 1932 by Lange and Krueger. It is a colorless liquid with a faint fruity odor; freezing point -50°C., boiling point 180°C. It is soluble in a wide range of solvents: water to fixed oils. It decomposes rapidly in water, however, and peanut oil seems to be the solvent of choice.

The English authors, McCombie and Saunders[1] named the compound as a "phosphonate" which probably more nearly describes the structure:



DIISOPROPYL FLUOROPHOSPHATE

These workers prepared a long list of "phosphonate" esters, and after animal testing concluded that the diisopropyl ester was the most active pharmacologically. They suggested the following synthesis as one method of preparing these compounds:

$$PCl_3 + 3ROH = (RO)_2POH + RCl + 2HCl$$
$$(RO)_2POH + Cl_2 = (RO)_2POCl + HCl$$
$$(RO)_2POCl + NaF = (RO)_2POF + NaCl$$

Diisopropyl fluorophosphate was a war secret until recently. Experiments were carried on both in England and in this country using DFP as a poison gas. Exactly how it is reduced to the gaseous state is not stated in the literature; but it might be assumed to be by some sort of "atomizing" technique. The pharmacological activity is reduced or destroyed completely if the (-F) is replaced by (-H), (-OH), ($-C_2H_5$), (OC_2H_5), or ($-NH_2$).

DFP belongs to that group of parasympathomimetic drugs that inhibit choline esterase, the enzyme which hydrolyzes and thus inactivates acetylcholine. There are several drugs which posses this activity to a minor degree; but these that are used chiefly for that particular action are physostig-

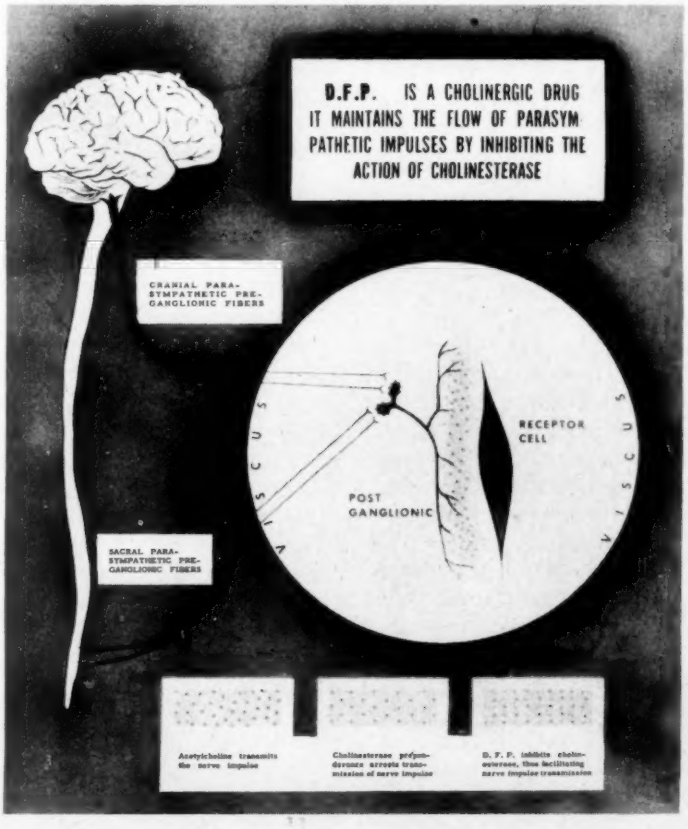
mine and neostigmine, both of which are official as salts in the U.S.P. Exhaustive pharmacological research on DFP was done by the Chemical Warfare Service at Edgewood Arsenal and in several universities and hospitals over the United States. This work is now appearing in scientific periodicals.

From studies made on rabbits, monkeys and man by Bodansky and Mazur[2], it was determined that DFP inhibited irreversibly (as determined by dialysis and dilution) the choline esterase of serum, red blood cells, muscle and brain. The time required for a return to normal choline esterase content of serum, red blood cells, and brain in the rabbit was 5, 10, and 60 days respectively. It had also been noticed that in laboratories where technicians were working with this material that a severe miosis with loss of accommodation developed even in an atmospheric concentration of 1:1,000,000[3] for a period of 5 minutes. With this information as a basis for attack, much attention has been directed toward the pathological conditions existing in myasthenia gravis and glaucoma as being typical of the remedial potentialities of a drug having the properties of DFP.

DFP in Myasthenia Gravis

Neostigmine has been the drug of choice since 1935 in the treatment of myasthenia gravis.[4] It is shown experimentally,[5] at least that this disease is due to a defect in the synthesis of acetylcholine and the severity of muscle incapacitation is related to the magnitude of the defect. According to Goodman and Gilman,[6] 10 to 30 minutes after an injection of neostigmine, striking improvements occur and a helpless individual can be restored to a near normal state. The duration of the effective choline esterase inhibition of a single dose is four to six hours as determined by the return of muscular inability. It was thought that with DFP, since choline esterase was depressed to a lower level, and for a longer period of time that a superior agent for myasthenia gravis was apparent.

Comroe and his coworkers[7] at the University of Pennsylvania gave 22 normal human subjects 0.7 to 3 mg of DFP in oil intramuscularly, or 2.5 to 10 mg orally. The serum choline esterase was markedly reduced and a slight reduction of red cell esterase activity was also noted. Several days or weeks were necessary for normal activity of the serum to return; longer in the red cells. Repeated injections showed no change in liver, kidney, or hematopoietic function. Seven myasthenia gravis patients in this study received 2.5 mg to 210 mg over periods of 1 to 150 days. Electromyograms and other objective muscle tests were used to determine the effectiveness of DFP as compared with neostigmine. Even with DFP depressing serum esterase 0 to 10% of normal the degree of relief was never equal to that ob-


D.F.P. IS A CHOLINERGIC DRUG IT MAINTAINS THE FLOW OF PARASYMPATHETIC IMPULSES BY INHIBITING THE ACTION OF CHOLINESTERASE
CRANIAL PARASYMPATHETIC PREGANGLIONIC FIBERS
SACRAL PARASYMPATHETIC PREGANGLIONIC FIBERS
VISCUS
RECEPTOR CELL
POST GANGLIONIC
Acetylcholine transmits the nerve impulse
Cholinesterase predominance arrests transmission of nerve impulse
D. F. P. inhibits cholinesterase, thus facilitating nerve impulse transmission

tained with prostigmine which depressed the serum esterase only 50 to 70% of normal, although DFP did relieve for a longer period of time.

It seems quite obvious from the work of Comroe et al that relief in myasthenia gravis is not dependent entirely upon the concentration of serum choline esterase. An explanation of the difference in action of DFP and neostigmine is offered in a recently published study[8] of neostigmine and its effect on skeletal muscle. This work indicates that the activity of DFP on skeletal muscle is due entirely to its depression of choline esterase activity with the consequent unimpeded action of acetylcholine. With neostigmine, this depression is not of the same order of magnitude nor as long lasting; there is in addition, however, a direct action on the muscle which makes it still the drug of choice.

DFP in Glaucoma

As has been previously stated, it was noted that diisopropyl fluorophosphate (DFP) produced a marked miosis with loss of accommodation similar to that noted with salts of pilocarpine and physostigmine. These ocular effects are caused by direct absorption through the ocular tissue and since it does not affect the denervated iris, its action is due to the inactivation of choline esterase.[9] In normal eyes,[10] accompanying miosis were spasm of accommodation and false myopia. The most disabling sign was pain upon focusing. There is an occasional patient who experiences a transitory rise in intraocular pressure. This also occurs with physostigmine and pilocarpine. Complete recovery was noted in normal eyes in from 3 to 7 days; some vague systemic effects were noted, and cumulative effects are apparently not to be expected. This study was done by exposing the eyes to an atmosphere containing DFP vapor. The CT (concentration x time) was 165 and 244. Ocular symptoms were relieved by single application of 0.25% atropine sulfate solution.

Lebensohn[11] and Leopold and Comroe[12] in Chicago and Philadelphia respectively, report the uses of DFP in glaucomatous conditions. Lebensohn states that the advent of DFP will make significant advances in the treatment of glaucoma; but that the ciliary muscle spasm and after-blur will limit its use to cases that cannot be controlled by previously known antiglaucomatous drugs. The use of a 0.05% solution produced optimum results. Stronger solutions caused more discomfort and were no more effective. In addition to the longer lasting miosis with lowered intraocular tension, further advantages of DFP over other drugs are the infrequency of application, the ability in some cases, to lower the tension to a greater degree, and in some cases where other drugs are not effective, DFP may prove successful.

Lebensohn's application schedule with moderately high tensions is once or twice daily, while the latter two clinicians suggest that application of the DFP solution be carried out every one to ten days depending upon the tension fluctions of the individual. Leopold and Comroe present a report of a study of 76 glaucomatous eyes in 56 patients:

in 16 eyes,	no miotic lowered the intraocular pressure
in 24 eyes,	physostigmine and pilocarpine worked equally as well as DFP
in 36 eyes,	DFP was the only miotic that lowered the intraocular pressure to normal (25 mm Hg), and prevented further loss of visual field
76 total	

From these data it would seem that DFP has a definite place in ophthalmology, in addition to its emergency uses in incidents where a glaucoma is precipitated by cycloplegic examinations or the injudicious use of mydriatics.[13]

DFP as an Experimental Tool

Probably one of the greatest uses of diisopropyl fluorophosphate in the future will be as an experimental aid. This is implied in the present literature throughout. Its use permits the study of certain autonomic functions heretofore impossible; and it seems evident that new theories and improved evaluations of autonomic drugs are forthcoming. Drug actions that now apparently have no autonomic connection (for example: liver extract[14]) will be made more lucid through the medium of DFP.

Toxicology

The toxic effects of DFP are essentially those of acetylcholine. An intravenous dose of 0.5 mg/kg was given to rabbits[15] (a previously determined LD_{100} dose). The symptomatology included both muscarinic and nicotinic effects; the nicotinic effects being the most debilitating. Physiological antidotes include atropine to combat the muscarinic action and magnesium sulfate to combat the nicotinic effects. Simultaneous dosing of atropine and magnesium sulfate protected rabbits and cats[16] from death usually brought about by paralysis of respiration.

It should be mentioned here that diisopropyl fluorophosphate and eserine exert a synergistic or antagonistic effect to each other depending on the order of the dosage.[17,18] A small dose of eserine will protect against a lethal dose of DFP if given in advance of the DFP. In so doing the

choline esterase is bound reversibly and renders DFP incapable of attack. Probably by the time that the eserine action is dissipated the DFP has been detoxified as this process takes place rapidly, chiefly by the liver. If DFP is given prior to a dose of eserine, the eserine effect is potentiated greatly. This synergism-antagonism arrangement may prove to be of value in myasthenia gravis and certainly in experimental therapeutics.

Availability

Diisopropyl fluorophosphate is available only for investigational purposes through Merck and Company, Inc., Rahway, N.J. Further information might also be obtained from Edgewood Arsenal, Maryland.

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NATIONAL PHARMACY WEEK

APRIL 20-26

THE KEY TO PHARMACY'S PUBLIC RELATIONS PROGRAM

The National Pharmacy Week Committee backed by the American Pharmaceutical Association and the National Association of Retail Druggists, is endeavoring to bring about a nation-wide participation in National Pharmacy Week this year because of the great importance of the cause to which this week has been dedicated in 1947—the fight against cancer.

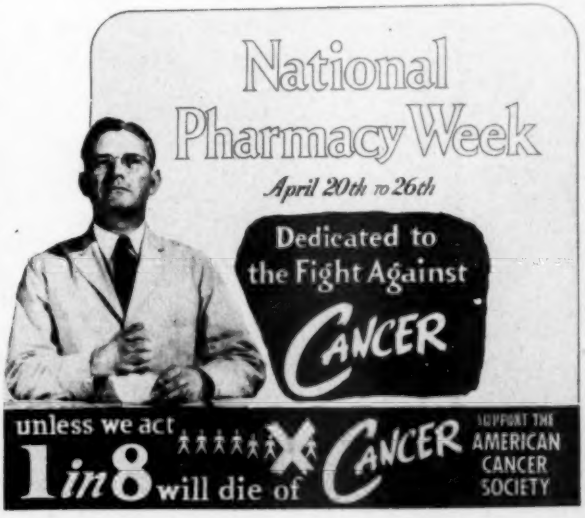
Pharmacy's public relations in individual communities has always been good. This is due largely to the high regard in which the average citizen holds his community pharmacist. It is necessary for the profession to link the highly regarded local pharmacist in the public mind with events of great public health significance. The observance of National Pharmacy Week at a time when it may be dedicated to a nation-wide health education program, gives us that opportunity.

This observance will:

(1) Call attention to your important role in promoting ing health and medical care.
(2) Demonstrate your interest in health education, which will build good will for you with the public and with related professions.
(3) Make your customers more conscious of your professional functions.
(4) Improve the status of pharmacy.

Mail the card requesting display material today!

ATTENTION HOSPITAL PHARMACISTS


National Pharmacy Week
April 20th to 26th
Dedicated to the Fight Against CANCER
unless we act
1 in 8 will die of CANCER
SUPPORT THE AMERICAN CANCER SOCIETY

A BOMB CRATER on New Guinea, half-filled with water from the tropic rains, is sprayed with oil by a malaria control team of the Army to prevent its becoming a breeding place for mosquitoes. Knapsack-type sprayers are used in dealing with such small pools as this

THE FIRST PORTION OF AN ARTICLE BRINGING HOSPITAL PHARMACISTS A RESUME OF THE LATEST DEVELOPMENTS IN THEIR SPECIALTY - THERAPEUTIC AGENTS.

RECENT ADVANCES IN Therapeutic Agents

by DON E. FRANCKE and GLORIA F. NIEMEYER

Recent years have brought wonderful advances in the development of new therapeutic agents. Progress was catalyzed by the urgent requirement to develop vitally needed drugs for the Allied and Axis armies. As never before, the development of the newer therapeutic agents has been characterized by the utmost cooperation of hundreds of research teams representing all branches of the allied professions in America and abroad. Some of the new drugs are German developments picked up by advance Allied units trained especially for this purpose.

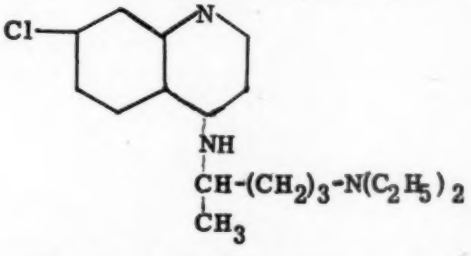
With armies widely scattered from frigid to tropical climates, the personnel was exposed to an ever expanding range of disease for which preventive and therapeutic agents had to be found. One of the most fruitful searches was carried out in the field of antimalarial drugs. Although a wartime measure, antimalarial research has tremendous peacetime significance since malaria is one of the worlds most prevalent diseases, it is estimated that 25 percent of the world's population has malaria.

ANTIMALARIALS

In addition to quinine, quinacrine (atabrine) and pamaquine (plasmochin) three new chemotherapeutic agents are available for the treatment of malaria. During the war a vast screening program was developed in which 14,000 drugs were examined. Tested first on chickens, ducks, canaries and turkeys which had been inoculated with their respective species of malaria parasites, the drugs showing promise were then studied for their antimalarial activity in monkeys. Finally, those drugs that possessed antimalarial activity in monkeys were then studied for their effect in humans.

CHLOROQUINE

One of the drugs investigated was chloroquine (SN 7618) now marketed by the Winthrop Chemical Company as Aralen disphosphate tablets. Each tablet contains 0.25 gram of chloroquine diphosphate, equivalent to 0.15 gram of chloroquine base. Chloroquine is the non-proprietary name adopted by the Council on Pharmacy and Chemistry of the American Medical Association.



7-chloro-4 (4-diethylamino-1-methylbutyl-amino) quinoline.

CHLOROQUINE (SN 7618)

Chloroquine is superior to quinine and atabrine for the suppression of acute attacks of vivax malaria. In addition to suppressing acute attacks of falciparum malaria, it completely cures the infection. It possesses four principal advantages

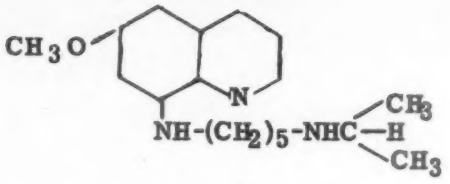
over atabrine: chloroquine produces less gastrointestinal irritation; does not discolor the skin; apparently causes no psychotic disturbances; produces more rapid symptomatic relief, usually within 24 to 48 hours; there are fewer relapses, and longer periods between relapses in vivax infections.[1] Side-effects of chloroquine administration include mild and transient headache, visual disturbances, pruritus and gastrointestinal complaints.

The recommended dosage of chloroquine for suppression of malaria is 0.3 gram given once weekly on the same day of the week. In the treatment of acute attacks an initial dose of 0.6 gram of chloroquine followed by 0.3 gram within six to eight hours is given. This, followed by a single dose of 0.3 gram on each of two successive days, usually produces prompt disappearance of symptoms, eradicating infection due to P. falciparum and terminating the acute attack of P. vivax infection. Vivax malaria may then be controlled by administering suppressive doses of the drug. An alternative dosage in acute attack of malaria is 1.2 grams of chloroquine in divided doses over a period of twenty-four hours.[2]

PENTAQUINE (SN 13,276)

A new antimalarial drug not yet well evaluated is pentaquine. The principal field of usefulness for this agent is in the cure of malaria due to P. vivax. When used in combination with quinine, pentaquine has been found to be a superior curative agent for this disease. The toxicity of Pentaquine is too great to warrant its use in prophylaxis or prolonged suppression of malaria. Clinical experience with the drug has been restricted mainly to heavy infections with the Chesson strain of P. vivax under experimental conditions. The Chesson strain, like other Southwest Pacific strains is characterized by a high relapse rate.[3]

Pentaquine has been used in the form of its diphosphate (75.5 percent pentaquine) in studies of the drug carried out under the sponsorship of the committee on Medical Research of the Office of Scientific Research and Development. A methoxyquinoline derivative, pentaquine is chemically related to pamaquine (plasmochin). The drug is still in the experimental stage and has not been released for general use.



6-methoxy-8-(5-isopropylaminoamylamino)-quinoline.

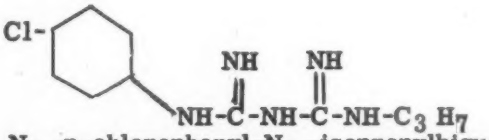
PENTAQUINE (SN 13,276)

Pentaquine is administered in a daily dose of 60 mg. of the base (equivalent to 80 mg. of phosphate), with 2 grams of quinine. The drugs are given in divided doses every four hours, for 14 days. The daily dose of 60 mg. of pentaquine base should not be exceeded. Quinine is administered concurrently with pentaquine since it increases the plasma concentration of the drug.

Toxic symptoms of pentaquine when given in the recommended therapeutic dosage are occasional anorexia, abdominal discomfort of pain, and slight methemoglobinemia. Further toxicity studies are being carried out and at present the drug should be given only under close medical supervision.

PALUDRINE

A British development resulting from several years of intensive research, paludrine is entirely different from other antimalarials in that it is a diguanidine, a class of compounds not previously known to have antimalarial activity.[4]



N_1-p-chlorophenyl-N_3-isopropylbiguanide

PALUDRINE (4888)

[1] Faust, E. C.: Tropical Medicine, J. A. M. A. 132:965 (Dec. 21) 1946.

[2] Loeb, R. F. Et. Al.: Activity of a New Antimalarial Agent, Chloroquine (SN 7618), Statement Approved by the Board for Coordination of Malarial Studies. J. A. M. A. 130:1069 (April 20) 1946.

[3] Loeb, R. F. Et. Al.: Activity of a New Antimalarial Agent, Pentaquine (SN 13,276), Statement Approved by the Board for Coordination of Malarial Studies. J. A. M. A. 132:321 (Oct. 12) 1946.

[4] Maegraith, B. G.; Adams, A. R. D.; King, J. D.; Tottey, M. M.; Rigby, M. B.; and Sladden, R. A.: Paludrine in The Treatment of Malaria, Brit, M. J. 1 (June 15) 1946.

Curd and Rose[5] have described the dramatic search made by the British investigators which finally resulted in this new drug which will rival or excel chloroquine as a suppressive antimalarial. The toxicity of paludrine appears to be low. It is less toxic than quinine or quinacrine and can be safely administered over a long period of time without risk of untoward reactions.

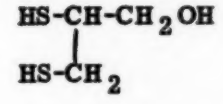
The medical research unit of the Australian army experimentally infected with malaria 850 healthy volunteers. More than 200 were treated with paludrine while many hundreds of troops with relapsing benign tertian malaria were treated with the drug under controlled conditions. While taking 100 mg. of paludrine daily for three weeks after being infected with Plasmodium falciparum by infected mosquitoes, volunteers did not develop any symptoms of malaria and parasites were never demonstrated in their blood either microscopically or by subinoculation into fresh volunteers. Thus the drug acted as a casual prophylactic in falciparum infections. After infection with Plasmodium vivax a similar result was obtained. But on ceasing to take the paludrine all those infected subsequently developed delayed attacks of overt vivax malaria. Thus paludrine acted only as a partial prophylactic against benign tertain infections.[6]

The practical conclusion from these and other experiments is that paludrine 100 mg. twice weekly will entirely prevent falciparum infection and will suppress vivax malaria throughout the period of administration. The significant quality of paludrine as a schizonticide is the smallness of the dose required to resolve a clinical attack of malaria. A single tablet of 100 mg. will cause disappearance of symptoms and of parasites from the blood but radical cure is not to be expected from this dose. An entirely new field in the chemotherapeutic control of malaria is opened up by paludrine.

BAL - DIMERCAPROL

As the German armies approached the channel ports one of the greatest fears of the British was the use of poison gas in an attempted invasion. Of the poison gases one of the most feared was the arsenic bearing Lewisite, $CHCL{=}CH\text{-}AsCl_2$. To combat this weapon, investigators at Oxford carried out work which culminated in the development of an antidote called British Anti-Lewisite, commonly abbreviated as B-A-L. This war-weapon is now being used to combat poisoning by heavy metals, principally arsenic and mercury.

Chemically, BAL is 2, 3,-dimercaptopropanol. Although unstable in water and propylene glycol, it is stable in peanut oil and benzyl benzoate and may be sterilized in a mixture of the latter solvents, using glass-sealed ampules, with only a slight loss in activity. The Council on Pharmacy and Chemistry of the American Medical Association has urged that the more descriptive, nonproprietary name, Dimercaprol, be adopted in place of the term BAL.



2,3,-dimercaptopropanol

DIMERCAPROL BAL

BAL-in-oil ampules 4.5 cc., containing BAL 10 percent, benzyl benzoate 20 percent in peanut oil, may be purchased from Hynson, Wescott and Dunning, Inc., Baltimore 1, Maryland.

Since BAL possesses the ability to remove arsenic, mercury and bismuth which has become bound to body cells, it may be used as an antidote for poisoning by these compounds. The toxicity of these heavy metals is due to the fact that they combine with, and block the function of physiologically essential groupings in the body cells, specifically of cellular-SH groups which are associated with enzyme proteins. For instance arsenic combines with and inactivates tissue enzyme proteins containing the -SH grouping. BAL detoxifies arsenic by forming a very stable chemical combination with it and thus permitting its rapid excretion from the body.[7]

DOSAGE

BAL-in-oil should be given only by intramuscular injection. It has been found that the widest margin of safety between toxic levels and the effective dose is provided by injections repeated at four-hour intervals. Further, a single injection of BAL is followed by an increased urinary excretion of arsenic for a period of 2 to 4 hours.

The recommended dosage for milder cases of arsenic poisoning is 2.5 mg. per kilogram of body weight. This dose is repeated at four-hour intervals for a total of 4 to 6 injections on each

[5] Curd, F. H. S., and Rose, F. L.: The Discovery of Paludrine, Chem. and Ind. 75 (Feb. 16) 1946.
[6] Paludrine in Malaria, Foreign Letters J. A. M. A. 132:936 (Dec. 14) 1946.
[7] Eagle, Harry: The Systemic Treatment of Arsenic Poisoning with BAL (2,3-Dimercaptopropanol), J. Ven. Disease Inform., 27:114 (May) 1946.

of the first two days and the same dose is given twice on the third day. The dosage may then be reduced to one or two injections daily for a total period of 10 days, or until recovery is complete. According to this schedule a patient weighing 70 kilograms would receive 175 mg. of BAL, or 1.75 cc. of the 10 percent solution of BAL-in-oil at each injection.

For more severe cases of arsenic poisoning the recommended dosage is 3 mg. per kilogram. Using this dosage, a 70 kilogram patient would receive 210 mg. of BAL or 2.1 cc. of the 10 percent solution-in-oil every four hours for the first two days - 6 injections per day. Four injections would be given on the third day and injections twice daily thereafter for 10 days, or until complete recovery.

In the treatment of mercury poisoning larger doses of BAL are used. The initial dose is usually 5 mg. per kilogram followed in one or two hours by a dose of 2.5 mg. per kilogram. After a lapse of two to four hours a second dose of 2.5 mg. per kilogram should be given within the first twelve hours of therapy. On the second day two-2.5 mg. per kilogram doses may be given, and on the third day one 2.5 mg. per kilogram dose may be administered.[8]

SIDE EFFECTS AND TOXICITY

Doses of 2.5 to 3 mg. per kilogram may be injected intramuscularly with only a temporary local discomfort at the site of injection, and with transitory and unimportant subjective reactions in a small proportion of cases. When the dosage reaches 4 or 5 mg. per kilogram the incidence and severity of toxic reactions increase markedly. In order of decreasing frequency, the symptoms consist of nausea, vomiting, and headache; a burning sensation of the lips, mouth, throat and eyes, sometimes with accompanying lacrimation or salivation and pain in the teeth; generalized muscular aches with burning and tingling of the extremities; and a sense of constriction in the chest, with a feeling of anxiety; there is also frequently an elevation in the systolic and diastolic blood pressure. These reactions regularly subside in 30 to 90 minutes. For more complete information on BAL refer to THE BULLETIN, May-June, 1946, page 76.

RADIOTHERAPY

Advancement in the field of atomic science in the past year has correspondingly resulted in great strides toward the use of radioisotopes in the medical field. With atomic energy directed toward studies in this field there has been a great increase in the production of radioactive elements to be used for research purposes. The first shipment of radioisotopes to research institutions was made from the Manhattan Project, Clinton Laboratories, Oak Ridge, Tenn. It is hoped that the products of atomic energy may help us to learn the causes of hitherto obscure and fatal diseases and so provide a real basis for their prevention and cure. Requests for radio-elements from the Manhatten Project included the study of mechanisms by which cancer is produced, dysfunction of the thyroid glands, growth and composition of teeth and bones, utilization of all essential food components and the turnover of iron in anemic conditions.

Application of radioactive substances in the treatment of cancer will depend to a great extent on how fast experience in this field is acquired. Thus far, radioactive isotopes have been used only to seek an understanding of the causes of cancer and cannot be considered as potential curative agents. Using radioactive iodine in the treatment of thyroid cancer, only a small percentage of the cancers pick up iodine at all and only a small fraction of those pick up enough to allow us to expect a therapeutic effect of the radioactive element. In a recent study radioactive iodine was found effective in control of malignant thyroid gland tumor.[9]

As a tracer element, carbon 13 has already been used successfully to determine how fats are broken down in the living cell, a process about which science had hitherto been able only to guess. Other examples of its use include studies of how sugars are oxidized and the effect insulin has on these reactions, or the effects of vitamins and the chemical reactions in which they participate. This is only an approach to studies of fundamental processes such as cancer, diabetes and others. As a result of this work it is also believed that other radioactive isotopes might be someday used as a treatment for cancer. Probably the greatest use of these elements will come, not from therapeutic uses, but by using the tracer technique in investigating the causes of disease and the life process in general.

In the treatment of polycythemia, a disease characterized by the abnormally rapid formation of red blood cells, radioactive phosphorus has been found to be an effective therapeutic agent. With this treatment it was found that symptoms disappear for as long as two years without further treatments. Radioactive phosphorus is also effective in myelogenous leukemia (cancer of white blood cells formed principally in the bone marrow). Growth of the cells can be restrained to some extent, the symptoms of the patient can be lessened,

[8] "BAL" (British Anti-Lewisite) in the Treatment of Arsenic and Mercury Poisoning, Report of The Council on Pharmacy and Chemistry, J. A. M. A. 131:114 (July 6) 1946.

[9] Seidlin, S. M.; Marinelli, L. D.; and Oshry, E.: Radioactive Iodine Therapy, Effect on Functioning Metastases of Adenocarcinoma, J. A. M. A. 132:838 (Dec. 7) 1946.

but life probably is not prolonged. Less promising results have resulted in treating lymphatic leukemia, a cancer of another type of the white blood cells. In a series of 160 patients treated, only about 50 percent show any benefit from the treatment using radioactive phosphorus.

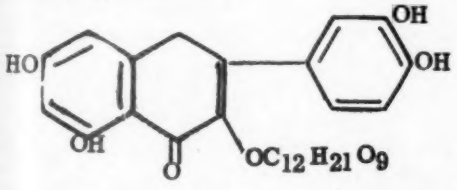
In the treatment of polycythemia vera radiophosphorus, which loses one half of its output of beta radiation every fourteen and three-tenths days, may be given intravenously or orally as sodium acid phosphate in doses of 5 to 10 millicuries. In the treatment of leukemias 6 millicuries of radiophosphorus as sodium acid phosphate is given orally once a week for three or four doses. Usually two to four doses of 6 millicuries each are required to bring the white blood cell count to the desired 40,000.[10]

Hyperthyroidism can be controlled by the use of radioactive iodine; however, dosage and duration of control are not well established. According to a recent report it was found that over-activity of the thyroid gland may be controlled in about 80 percent of the patients when using radioactive iodine.

RUTIN

A new drug for the treatment of capillary fragility is rutin.[12] Capillary fragility is often associated with high blood pressure. When accompanied by high blood pressure, weakened capillaries often rupture causing small hemorrhages. When hemmorrhage occurs in the eye blindness may result; when it occurs in the brain paralysis and coma may ensue. Capillary fragility may be due to a variety of causes, certain drugs, for instance, may cause an increased capillary fragility leading to an increased tendancy to hemorrhage.

Chemically, rutin is a flavone glucoside, a rhamn oglucoside of quercetin, possessing the following formula.



RUTIN

Flavone glucoside, a rhamno-glucoside of quercetin.

Rutin is chemically related to "Citrin" or crude hesperidin but it has the advantage that it can be isolated as a pure substance and in this state has at least ten times the activity of crude hesperidin.

Rutin may be extracted from many plants, including tobacco, but is most successfully obtained from green buckwheat. It is isolated as a bright yellow powder. Rutin is available in 20 mg. capsules from Abbott Laboratories and the E. R. Squibb and Sons.

The recommended dosage is 20 to 40 mg. given three to four times a day for several weeks, or until the Göthlin Petechial Index, a measure of capillary fragility, becomes negative. Rutin has been found to be of negligible toxicity, devoid of cumulative action, and possesses no allergic activity. Doses up to 300 mg. have been employed with no noticeable toxic effects. Since the use of thiouracil increases the vascularity of the thyroid gland, thereby increasing the technical difficulties of operation, it has been suggested that rutin be used as an adjuvant to thiouracil therapy to maintain the integrity of the smaller blood vessels.[12]

AN APOTHECARY IN HIS SHOP
From a print. Early XIXth Century

[10] Sturgis, C. C.: Hematology, J. A. M. A. 132:963 (Dec. 21) 1946.

[11] Shanno, R. L.: Rutin: A New Drug For The Treatment of Increased Capillary Fragility, Am. J. Sc. 211:539 (May) 1946.

[12] Freeman, J. T.: Effect of Thiouracil on Thyroid, Correspondence, J. A. M. A. 131:1093 (July 27) 1946.

Therapeutic Trends

New Trends in Medicine and Pharmacy Include CARONAMIDE IN PENICILLIN THERAPY - MESANTOIN - SODIUM FLUORIDE IN DENTAL CARIES - LICHEN WHICH RETARDS TUBERCULOSIS - ENTEROGASTRONE.

CARONAMIDE IN PENICILLIN THERAPY

Rapid excretion of penicillin by the kidneys may be inhibited by the new chemical, caronamide, which has been shown to cause a three-fold or better increase in penicillin concentration in the blood. Caronamide, or 4^1-carboxyphenylmethanesulfonanilide, was synthesized in the Sharpe and Dohme Laboratories by Dr. Karl H. Beyer and reported in Science (January 24).

Since penicillin is excreted by way of the renal tubules in addition to glomerular filtration, it is believed that suppression of penicillin excretion by the tubules could be expected to effect a considerably higher plasma concentration for a longer period of time than normally would be obtained following a given dose of penicillin. A reversible inhibition of the excretion of the drug by the tubular epithelium has been effected by administration of diodrast or PAH (p-amino-hippurate), but use of these compounds is limited.

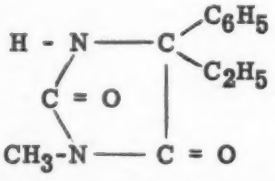
Excretion by renal tubules is a selective process and consequently, it seemed desirable to inhibit reversibly and selectively the transport mechanism for the excretion of penicillin without necessarily abolishing other transport systems or impairing vitality of the cell as a whole. By doing this, the remaining pathway for penicillin excretion would be glomerular filtration which would represent only about 20 per cent of the normal rate of penicillin elimination.

Since penicillin excretion works through an enzyme, a compound which would inhibit the excretion of an agent by the tubules on the basis of specific enzymatic substrate, competition would be effective in checking excretion of penicillin. The process should be reversible and the agent used must not affect any other kidney mechanism and be non toxic.

Administering penicillin with caronamide to dogs, it was shown that plasma concentration was increased for a longer period of time. As a result of these experiments, it is believed that caronamide may increase the effectiveness of penicillin and decrease the frequency of dose.

MESANTOIN

Recent reports on the use of the new anticonvulsant, mesantoin, have been favorable according to a report in Pacific Drug Review (December, 1946). Chemically related to dilantin, mesantoin is 3-methyl-5, 5 phenyl ethyl hydantoin.



Mesantoin
or
Phenantoin

Experimental investigations using mesantoin have been carried out by Dr. Norman David, professor of pharmacology at the University of Oregon. Using mesantoin to treat 20 cases of epilepsy Dr. David found that administration of mesantoin to 11 patients with grand mal proved more effective in 7 of them, than previously used drugs such as phenobarbital and dilantin, and that the number of petit mal attacks was greatly reduced in each of 16 patients suffering from this condition.

Recently, Kozol and Lennox reported on their experience with the use of mesantoin in over 100 cases before the American Psychiatric Association. They called this new drug phenantoin and found it very effective in grand mal, with very little toxic side-action, and to be well tolerated, although they claim that it occasionally makes the patient dopey. Mesantoin should be used in those cases which do not respond well to phenobarbital or dilantin, or in patients who suffer from both petit mal and grand mal attacks. A combination of mesantoin with phenobarbital, called "hydantal," may prove even more effective in some cases.

Mesantoin is manufactured by the Sandoz Chemical Company, 68-70 Charlton St., N. Y. 14, N.Y. It has not been released for commercial distribution as yet.

SODIUM FLUORIDE IN DENTAL CARIES

Results of the third study on the incidence of dental caries in the permanent teeth of a group of children for a 3-year period have been analyzed in Public Health Reports 61: 1683 (November 22, 1946). These data indicate that the number of teeth initially attacked by caries during the 3-year study period was 36.7 per cent less in treated than in untreated teeth. Furthermore, the number of additional tooth surfaces attacked in teeth which were carious at the time of treatment was 23.9 per cent less in treated than in untreated carious teeth.

Two groups of Minnesota school children were selected for participation in the topical fluoride study. One group of 337 children received 7 to 15 topical applications of a 2 per cent sodium fluoride solution applied to the teeth in the upper and lower quadrants of the mouth. The second group, consisting of 392 control children, did not receive any applications. Annual examinations of the teeth of both groups of children were made and the dental caries experience recorded. At the end of the first and second study years, the incidence of dental caries was reported.

According to the report at the end of the 3-year period, it was found that 130 sound teeth became carious in the upper left or fluoride-treated quadrant as compared with 205 in the upper right or untreated quadrant. In the lower mouth quadrants, 84 became carious in the left or treated quadrant and 133 in the right or untreated quadrant. In the treated quadrants the total number of newly carious teeth was 214, as compared with 338 in the untreated quadrants. Thus, there were 36.7 per cent less previously sound teeth attacked by caries in the fluoride-treated than in the untreated teeth, during the 3-year period ending May 1945. The number of additional tooth surfaces attacked by caries in previously carious teeth was also considerably less in treated than in untreated mouth quadrants.

LICHEN RETARDS TUBERCULOSIS

An antibacterial substance from the Lichen Ramalina Reticulata may be effective against tuberculosis. Recent laboratory studies using this lichen have been undertaken and reported in Public Health Reports (January 3, 1947). Use of the material as an antibacterial agent was suggested when it was noted that the carbohydrate substance, when separated from the plant, serves as an excellent medium for the growth of many types of bacteria. As a result of these observations it was concluded that there must be a chemical substance in the lichen which inhibits the growth of bacteria. Upon extraction the lichen material occurs as long yellow crystals having the empirical formula of $C_{16}H_{14}O_6$.

On infecting guinea pigs with human tubercle bacilli it was noted that there were twice as many deaths in the control animals as in those treated with the lichen crystals. Untreated animals during the last two weeks of the experiment lost more than twice as much weight as the treated ones. On the basis of these facts and the autopsy findings it is concluded that "the group of animals treated with the crystalline substance showed much less disease than the controls."

No obvious toxic effects appeared when the substance was administered in oil by daily hypodermic injections.

Previous studies had showed that the material completely checked human tuberculosis germs in the test tube in concentrations of 1:50,000. Although it also has an inhibiting effect against pneumococci, streptococci and some staphylococci, it did not show any ability to save mice from death when infected with type II pneumonia.

Although this lichen appears to retard the progress of tuberculosis in guinea pigs, its value in human tuberculosis is not stated and probably will not be known without further study.

ENTEROGASTRONE

Enterogastrone, a new hormone which scientists hope will heal ulcers and also prevent their recurrence has been announced by Dr. Andrew C. Ivy, physiologist and executive vice-president of

Continued on page 20

and it's 19

Don E. Francke

Gloria F. Niemeyer

This volume of THE BULLETIN brings the membership a greatly expanded editorial staff who will contribute various sections to each issue. The Society has expressed the desire that the publication be continued with Don Francke and Gloria Niemeyer as editors for 1947. The newly appointed editorial staff will make possible an improved publication to better meet the needs of practicing hospital pharmacists. The added sections should greatly increase the usefulness of THE BULLETIN to you, the members of the Society. Serving as a medium for the exchange of ideas, it offers hospital pharmacists an opportunity to initiate and carry out their ideas for the advancement of their specialty in the field of pharmacy. We hope that it succeeds in this, for this is the only purpose of its existence.

The present publication is an outgrowth of the Official Bulletin of the Ohio Society of Hospital Pharmacists which was first edited in June, 1943 by Leo Mossman of Holzer Hospital, Gallipolis, Ohio. Later, Harvey Whitney, formerly chief pharmacist at University Hospital, Ann Arbor, Michigan and the first chairman of the Society, assisted in its publication. The first volume, published monthly (except from February until July, 1944) beginning in June, 1943 and continuing through December, 1944, was known as the Official Bulletin of the American Society of Hospital Pharmacists and was published in a green mimeographed form. Mr. Mossman and Mr. Whitney continued as editors until February, 1944. From February, 1944 until July, 1944, the Bulletin was not published. In July, Mr. Francke, then

Leo F. Godley

LEO GODLEY, chief pharmacist at New York University Clinic will edit the section on "Pharmacology Reviews". Mr Godley is a graduate of the South Carolina Pharmacy School and was granted a Master of Science degree in hospital pharmacy from Western Reserve University. He is editor of the section on Hospital Pharmacy which appears in the Journal of the American Pharmaceutical Association, Practical Edition, and has contributed articles on various phases of hospital pharmacy to pharmaceutical and hospital journals.

Evlyn Gray Scott

EVLYN GRAY SCOTT, chief pharmacist at St. Luke's Hospital, Cleveland will edit the section on "Hospital Pharmacy Queries". Mrs. Scott received her Bachelor of Science degree in Pharmacy from Ohio State University and a Master of Science in General Science from Western Reserve University. She worked in several drug stores and at Children's Hospital, Honolulu, Hawaii before taking her present position. Mrs. Scott is one of the most active members of the Society, contributing to its advancement over a period of many years.

Albert P. Lauve

ALBERT P. LAUVE, chief pharmacist, Mercy Hospital, New Orleans will contribute articles on "Useful Pharmaceutical Equipment". Mr. Lauve received his training in Pharmacy at Louisiana State University Medical Center where he also acted as instructor in prescription writing. He is an instructor in hospital pharmacy at the New Orleans College of Pharmacy. Prior to accepting his present position he served as chief pharmacist at Charity Hospital in New Orleans.

THE BULLETIN

staff

47

SISTER MARY ETHELDREDA, center, shown with the officers of the Greater New York Chapter of the A.S.H.P., will write "Book Reviews". Sister Mary Etheldreda is chief pharmacist of The Saint Mary's Hospital, Brooklyn. She was graduated from St. John's University summa cum laude. In 1941 she was the recipient of the Fairchild Scholarship and later received a Master of Science degree from Western Reserve University.

chairman of the A.S.H.P. assumed the editorship of the Bulletin. Volume 1 was completed with numbers 13 and 14 combined for November and December 1944.

In 1945 volume 2 of THE BULLETIN took on a new format and was expanded to meet the needs of the large group of hospital pharmacists who previously had no single publication pertaining to their specialty only. From 1945 until the present time it has been published bimonthly as THE BULLETIN of the American Society of Hospital Pharmacists. Miss Gloria Niemeyer was first appointed associate editor in January 1945 and was reappointed by the membership at its 1946 convention.

Foreseeing that hospital pharmacy is a growing field, such departments as "Current Literature", "Therapeutic Trends" and "Notes and Suggestions" were established in order that hospital pharmacists might be better informed. To keep the publication progressive new departments have been added from time to time. In keeping with this constant effort to bring more complete information to the membership, several additional sections have been added to this volume of the publication. THE BULLETIN is unique in that it is one of the few publications which has been able to exist without admitting advertising to its pages. Also, the fact that it is a publication for hospital pharmacists and by hospital pharmacists adds to its practicality. The editorial staff will be pleased to receive your comments, and any suggestions you may have to offer for the improvement of the publication.

HERBERT L. FLACK, chief pharmacist, Jefferson Medical College Hospital, Philadelphia, will edit "Organization News". Mr. Flack was graduated from Philadelphia College of Pharmacy and Science and served an internship in hospital pharmacy at New York Hospital. He is a member of the Membership Committee of the A.S.H.P. and is active in the Philadelphia Hospital Pharmacists Association. Mr. Flack was also recently appointed Hospital Pharmacy Editor of the American Professional Pharmacist.

Herbert L. Flack

PAUL COLE, chief pharmacist at Michael Reese Hospital, Chicago, will edit the section devoted to a description of hospital pharmacy departments. Mr. Cole was graduated from Purdue University School of Pharmacy. He has served as chairman of the Hospital Pharmacists of Chicagoland, secretary of the Hospital Pharmacy section of the American Hospital Association and member of the Program Committee of the American Society of Hospital Pharmacists. For several years Mr. Cole has written "A Hospital Pharmacist's Diary" for Hospital Management.

Paul F. Cole

GEORGE L. PHILLIPS, assistant chief pharmacist, University Hospital, Ann Arbor, Michigan, will edit "Notes and Suggestions". After being graduated from the University of Michigan, College of Pharmacy in 1939, Mr. Phillips was appointed pharmacy intern at University Hospital. He was appointed to his present position in 1944. Mr. Phillips is chairman of the Pharmacy Section for the Tri-State Hospital Assembly and is vice-president of the Michigan Branch of the A.S.H.P.

EDDIE WOLFE, chief pharmacist at Mt. Alto Veterans' Hospital in Washington, D.C. is the editor of the pages devoted to hospital pharmacy in the Veterans Administration. Mr. Wolfe was graduated from George Washington University School of Pharmacy. He was appointed as pharmacist for the U.S. Public Health Service Dispensary in Washington, D.C. After five years at this position he enlisted in the U.S. Coast Guard where he served as Chief Pharmacists Mate. Returning to the U.S. Public Health Service, he resigned after a month to accept his present position.

George L. Phillips

Eddie Wolfe

R. P. Fischelis, secretary of the American Pharmaceutical Association and Hans S. Hansen, chairman of the American Society of Hospital Pharmacists meet to discuss the Division of Hospital Pharmacy.

hospital pharmacy DIVISION created

A STEP IMPORTANT TO THE FUTURE OF HOSPITAL PHARMACY IS THE ESTABLISHMENT OF THE DIVISION OF HOSPITAL PHARMACY BY THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS AND THE AMERICAN PHARMACEUTICAL ASSOCIATION.

SOCIETY MEMBERS SHOULD BECOME FAMILIAR WITH THE TERMS OF THE AGREEMENT CREATING THE DIVISION FOR THEY WILL BE GIVEN THE OPPORTUNITY TO RATIFY THE PLAN AT THE AUGUST CONVENTION.

The Council of the American Pharmaceutical Association and the Executive Committee of the American Society of Hospital Pharmacists have announced the establishment of a Division of Hospital Pharmacy which will further the objectives of both organizations with respect to the development of hospital pharmacy.

The Division of Hospital Pharmacy consists of a Policy Committee, a Director, a Secretary and such staff as may be required to carry out its functions. The Policy Committee is composed of seven members; two to be selected by the American Pharmaceutical Association and to include the Secretary of the A. Ph. A., four to be selected by the American Society of Hospital Pharmacists and to include the Chairman and the Editor of the American Society of Hospital Pharmacists, and one to be selected by the American Hospital Association.

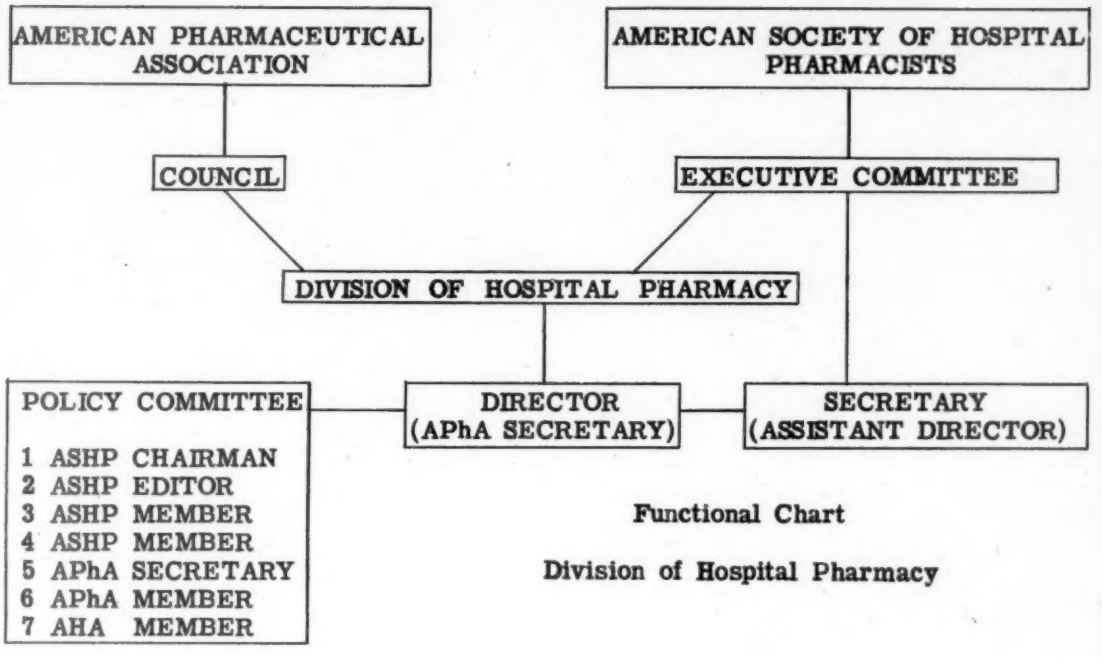
The complete text of the agreement to be passed on by the membership at the annual convention is presented here for the information of the hospital pharmacists.

AGREEMENT BETWEEN THE AMERICAN PHARMACEUTICAL ASSOCIATION AND THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS WITH RESPECT TO INTEGRATION OF FUNCTIONS AND PROCEDURES

WHEREAS, the consummation of the objectives of the American Society of Hospital Pharmacists require an expansion of its services to its members, and

WHEREAS, this expansion can best be provided through closer coordination of the activities of the American Society of Hospital Pharmacists with the American Pharmaceutical Association of which it is an affiliate, and

WHEREAS, Chapter 6 of the By-Laws of the American Society of Hospital Pharmacists provides that it shall be subject to such rules and regulations as are or may be provided by the American Pharmaceutical Association to govern



Functional Chart

Division of Hospital Pharmacy

its affiliates, and

WHEREAS, the American Pharmaceutical Association is deeply interested in promoting the public health and welfare through the expansion of its services in the field of medical care, and

WHEREAS, hospital pharmacy constitutes an increasingly important branch of the services rendered by hospitals to the sick, and

WHEREAS, the enlargement of existing hospitals, the establishment of new hospitals under recent Congressional enactments and the need for pharmaceutical service in these hospitals present an ever-growing problem to the profession of pharmacy from the standpoint of providing adequate personnel and developing satisfactory standards of service, and

WHEREAS, the combined efforts of the American Pharmaceutical Association and the American Society of Hospital Pharmacists are needed to assure a high quality of pharmaceutical service in the hospitals of the United States and the development of adequately trained personnel to man these hospitals, and

WHEREAS, the American Pharmaceutical Association's Headquarters Building and staff can most adequately provide the resources required to carry out the desires of both the American Pharmaceutical Association and the American Society of Hospital Pharmacists to build up a strong Hospital Pharmacy Service which will benefit Hospital Pharmacists, Hospitals, the Practice of Pharmacy in general, and the sick, now therefore be it

RESOLVED, that the American Pharmaceutical Association in cooperation with the American Society of Hospital Pharmacists create a Division of Hospital Pharmacy within the administrative structure of the American Pharmaceutical Association. This Division is to be composed of a Policy Committee, a Director, a Secretary and such staff as may be required to carry out its functions. The Policy Committee shall be composed of seven members; two to be selected by the American Pharmaceutical Association and to include the Secretary of the American Pharmaceutical Association, four to be selected by the American Society of Hospital Pharmacists and to include the Chairman and the Editor of the American Society of Hospital Pharmacists, and one to be selected by the American Hospital Association, and be it further

RESOLVED, that the Division of Hospital Pharmacy shall assume such duties at the Headquarters Building of the American Pharmaceutical Association, 2215 Constitution Avenue N. W., Washington,

D. C., as may be agreed upon between the American Society of Hospital Pharmacists and the American Pharmaceutical Association working through the Policy Committee of the Division, and be it further

RESOLVED, that the Chairman of the Policy Committee shall be the Chairman of the American Society of Hospital Pharmacists and that the Director of the Division shall be the secretary and General Manager of the American Pharmaceutical Association and that the Secretary of the Division, who may also be designated as Assistant Director, shall be a full-time employee of the American Pharmaceutical Association at the Headquarters Building and shall be selected after consultation with the Executive Committee of the American Society of Hospital Pharmacists, and be it further

RESOLVED, that the functions of the Division of Hospital Pharmacy shall include:

1. Furthering the objectives of the American Society of Hospital Pharmacists as set forth in Article 1 of the Constitution of that organization and pertinent objectives of the American Pharmaceutical Association as set forth in its Constitution.
2. Integrating the activities of the American Society of Hospital Pharmacists with those of the American Pharmaceutical Association.
3. Building up the membership of both the American Society of Hospital Pharmacists and the American Pharmaceutical Association.
4. Make available to the members of the American Society of Hospital Pharmacists and to all individuals, agencies and organizations interested in Hospital Pharmacy or requiring information on Hospital Pharmacy, the full resources of both the American Pharmaceutical Association and the American Society of Hospital Pharmacists.
5. Promoting and assuring the future of the Bulletin of the American Society of Hospital Pharmacists in cooperation with the Committee on Publications of the American Pharmaceutical Association.
6. Providing an administrative unit with career personnel and necessary clerical assistance to further the interests of the American Society of Hospital Pharmacists and Hospital Pharmacy in general.
7. Providing necessary funds with which to accomplish the objectives sought, and be it further

RESOLVED, that the functions of the officers of the Division shall be as follows: The Chairman of the Policy Committee shall preside at all meetings of the Committee. The Director of the Division shall have general supervision over its activities and shall be responsible to the Council of the American Pharmaceutical Association and the Executive Committee of the American Society of Hospital Pharmacists for the activities of the Division and for the proper coordination of the activities of the two associations in the development of Hospital Pharmacy and the status of Hospital Pharmacists. The Secretary of the Division shall carry out such duties as may be assigned by the Director and shall also be responsible to the American Society of Hospital Pharmacists for the following duties:

1. Maintaining the roster of Hospital Pharmacists and the membership records of the American Society of Hospital Pharmacists.
2. Conducting membership campaigns and carrying on such correspondence between the American Society of Hospital Pharmacists and its members as may be agreed upon with the Secretary of the American Society of Hospital Pharmacists.
3. Preparing and maintaining mailing lists of Hospital Pharmacists for the purpose of distributing the Bulletin of the American Society of Hospital Pharmacists and such other publications as may be directed to hospital pharmacists.
4. Assisting in the preparation of the program for the annual meetings of the American Society of Hospital Pharmacists and carrying out such duties in connection with the annual meeting as may be mutually agreed upon between the Secretary of the American Society of Hospital Pharmacists and the Secretary of the Division, subject to the approval of the Executive Committee; and be it further

RESOLVED, that this Agreement become effective immediately upon receiving the signatures of the President and Secretary of the American Pharmaceutical Association and the Chairman and Secretary of the American Society of Hospital Pharmacists.

THERAPEUTIC TRENDS, continued from page 15

the professional school of the University of Illinois in Chicago. According to a recent release of the American Medical Association this hormone is derived from the mucous lining of the upper intestinal tract of hogs. Work in developing enterogastrone was done at Northwestern University Medical School.

Dr. Ivy says that scores of patients have been treated with this hormone and "the results are sufficiently encouraging to show this method of attack on the problem of the prevention of recurrences of peptic ulcer is worthy of further study."

CURRENT LITERATURE

HOSPITAL MANAGEMENT

December 1946 - "Pharmacy of U. of Kansas Health Service Offers Useful Management Suggestions" by Francis I. Blair, Instructor, School of Pharmacy, University of Kansas - Description of pharmacy department and work carried on. page 80

January 1947 - "Purchasing for the Hospital Pharmacy" by R. W. Marquand, assistant superintendant of Cleveland City Hospital, Cleveland, Ohio - Fundamental facts to be considered in purchasing for the hospital pharmacy. References included. page 78

"Narcotic Solution Rebuttal; Presenting the Pro Side by Dorothy E. Tobin, R. Ph., W. A. Foote Memorial Hospital, Jackson, Mich. - The disadvantages of preparing narcotic solutions as described in a recent issue of Hospital Management are attacked by one in favor of the pharmacy preparing these solutions. page 86

MODERN HOSPITAL

December 1946 - "Antihistamine Drugs in Allergy" - A summary of the recent work with the new antihistamine agents. page 94

January 1947 - "A Formulary Is Essential to Efficiency in the Pharmacy" by W. Arthur Purdum, chief pharmacist, Johns Hopkins Hospital, Baltimore Advantages of the formulary to the hospital rules controlling admission of drugs to formulary are given - content of formulary listed. page 90

SOUTHERN HOSPITALS

December 1946 - "Allied Health Conference of Alabama Meets" by Mrs. Thelma Coburn - Summary of meeting at which pharmacy was represented by Robert P. Fischelis, secretary, American Pharmaceutical Association. page 27

"With the Hospital Pharmacist" - News items of interest to hospital pharmacists - Potency of Penicillin Tablets Increased - Diversion of Copra Imports Increases Glycerin Shortage - Misuse of Barbiturates Alarms Health Officials - New Formulary issued at U. of Mich. - Capillary Fragility Increased by Rutin.- 'Do You Know That... - Vaccine Destroys Cancer In Mice. page 68

"The Out-Patient Clinic and Dispensary" by Anna D. Thiel - A summary of topic presented at Institute on Hospital Pharmacy by Donald A. Clarke including 'Developing the Outpatient Department' and 'The Physical Aspects and Equipment for the Sterile Solutions Room'. page 70

January 1947 - "Pharmacy's Contribution to Health and Medical Care" by Robert P. Fischelis - paper presented at Allied Health Conference of Alabama - part which pharmacy played in International Health Conference is discussed - also, pharmacy's part in the public health of the nation. page 69

AMERICAN PROFESSIONAL PHARMACIST

December 1946 - "Remodeling the Dispensing Laboratory" - Problems and possible solutions for the hospital pharmacist who is remodeling his department. page 1148

January 1947 - "What Progress in Hospital Pharmacy" - A review of 1946 activities in hospital pharmacy and the problems to be encountered during the coming year including better professional practice, interprofessional recognition, governmental regulation, unionization, post-graduate education and closer cooperation between practitioners and organizations. page 66

J. A. PH. A. PRACTICAL PHARMACY EDITION

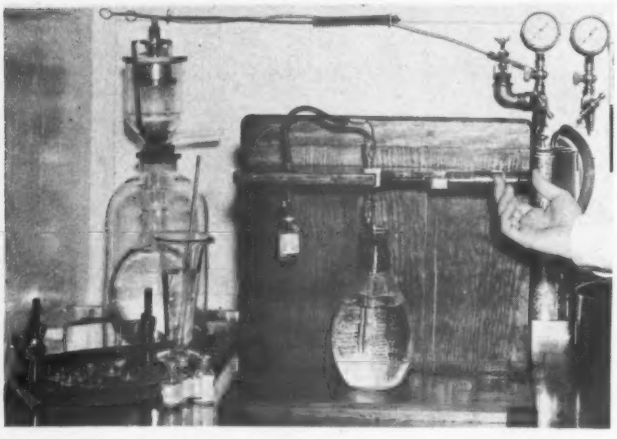
December 1946 - "Hospital Pharmacy Regulation" - A survey of the legal restrictions regulating hospital pharmacy in 47 states and the District of Columbia. page 545

January 1947 - "Is Hospital Pharmacy Experience Inferior?" by Leo F. Godley, A. S. H. P. - An editorial concerning plan recommended by the National Association of Boards of Pharmacy as applied to evaluation of hospital pharmacy experience. page 41

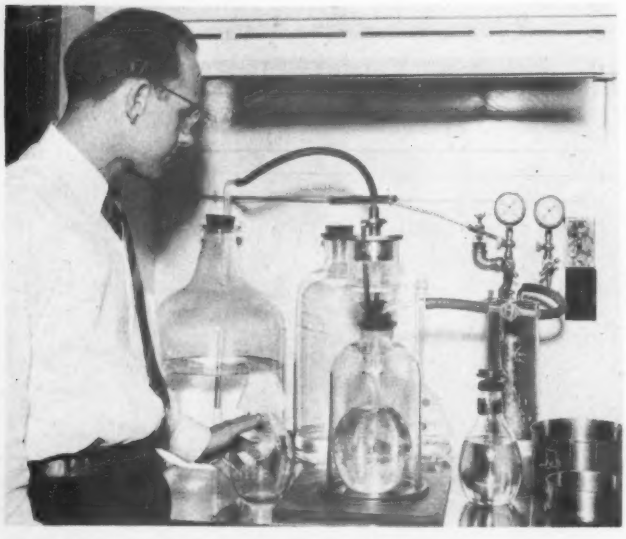
HOSPITAL PROGRESS

November 1946 - "Hospital Pharmacy Internships" by Sister Mary John, chief pharmacist, Mercy Hospital, Toledo.- A good discussion of the many problems involved in pharmacy intern training.

A portion of the Pharmacy at The Chester County Hospital, Mr. Cathcart, author of the accompanying article is pictured.



Apparatus for filling vials, valve mechanism is glass. Apparatus, left, is stainless steel and clamps to hold vial tops on during autoclaving. Note double needle in valve.



Filtration apparatus ready for operation. The filter top and clamp were built in the hospital shop. Stainless steel containers at right holds tops and bushings. Note Ultraviolet light at top.

It would seem from observation of many small hospitals that the majority do not make their own parenteral solutions. It would be well if such hospital pharmacists would look into this matter as an excellent means of producing revenue for the department, increasing the prestige, assuring adequate help and at the same time lowering patient costs of these preparations. Using our hospital as an example I would like to show what one hospital has done in regard to this matter. To give a picture of the size of The Chester County Hospital here is the record taken from the Hospital number of the Journal of the American Medical Association.

Chester County Hospital: Type of Service, General: Beds, 152: Average Census, 95: Bassinets, 26: Number of Births, 603: Admissions, 3,498. From these facts it is easily seen that this is not the size of hospital you would expect to secure the elaborate equipment needed for this work. Our plan has always been to manufacture all that is possible and at the same time never to sacrifice quality for price.

The hospital has a distinct advantage over the manufacturer and retailer in that we have no financial problem of advertising, packaging, shiping charges, sales and etc. which, by necessity, bring about a great increase in price from manufacturer to patient. We have worked under the theory that if a hospital will put adequate funds into equipment and salary for competent employees the saving will more than offset the aforementioned costs of manufacturer and retailer. This saving need not be brought about with the antagonism of either local pharmacists or manufacturer as drug use is confined within the premises and our contacts with the outside profession are most cordial.

Perhaps the greatest stumbling block in the path of hospital manufactured parenteral solutions is the pharmacist, himself. He is either too busy with his present tasks to want to take on more work or feels that he is inadequately trained to attempt such an undertaking; but he will be pleased with his administrator's increased faith when he shows the great amount of savings that is possible in a very short period of time. With the installation of the Fenwal system, or a derivation of it, he has an almost fool-proof method of making safe parenteral solutions. With the increased savings the administrator, having been made concious of these savings, will supply the adequate help. As a business man he will be among the first to realize that it is poor business to hire a registered pharmacist at $2.00 an hour to wash bottles and deliver drugs, as is required of too many small hospital pharmacists.

AN ACCOUNT OF PARENTERAL FLUID PREPARATION IN A HOSPITAL WITH AN AVERAGE CENSUS OF LESS THAN 100 SHOWS MONTHLY SAVINGS OF OVER $400.

Economics OF PARENTERAL FLUID PREPARATION

by J. R. CATHCART, Chief Pharmacist
The Chester County Hospital
West Chester, Pa.

COST OF EQUIPMENT

Now to get into the specific facts and figures to bear up what has been said. I would like to present here the cost of the original equipment as written in my record books of 1937.

Barnstead Still	$159.00
Storage Tank	24.00
Water Conditioner (to prevent scale)	125.00
Bell Jar 8"x 12"	4.50
3 Sintered Glass Filters	15.60
1 Filter Tube	3.30
3 Rubber Stoppers #12	2.55
2 Solution Bottles (Pyrex) 5 Gal.	8.00
1 Solution Bottle (Pyrex) 9 L.	3.00
Pump: Vacuum, Valves, pipe, fittings and etc.	30.00
Fenwal bottles 48 (1000 cc.)	75.60
24 Vent Tubes	20.00
48 Steel Stoppers	64.80
48 Rubber Bushings	12.60
48 Steel Tags	10.00
1 Filtration Desk	15.52
1 Sterilizing Tray and Carriage	15.00
Compressor & Relief Valve	24.58
2 Stop Cocks	2.50
1 Pressure Gauge	1.35
1 Vacuum Gauge	1.40
1 Ground Glass Plate	3.50
1 Ultraviolet Light	30.00
1 Ultra Filter	4.50
1 Vacuum Flask	1.45
2 lb. Pyrex Glass Rods	2.00
2 Stainless Steel Pans	12.00
1 Stainless Steel Small Pan	3.50
2 Switches	70
Total	675.95

Needless to say since 1937 there has been some breakage and replacement of parts, such as rubber hose and bushings. Sintered glass filters have a tendency to become saturated with foreign material and need to be replaced (about 1 a year). But the basic materials such as the pump, a great number of bottles etc. are still in perfect condition.

PRODUCTION RECORDS

As to production figures they are all recorded in our manufacturing book and here are the average monthly figures for the first few months.

212	1000 cc	Bottles 5% Dextrose in Normal Saline
6	1000 cc	Bottles 5% Dextrose in Water
17	1000 cc	Normal Saline
10	1000 cc	Bottles 2.5% Dextrose in Normal Saline.

These were all produced at a total cost of ingredients of $4.80. Even we were surprised at the astounding facts these figures showed and immediately decided to branch out into vial packages. Beginning with a very easy preparation, Vials Thiamin Hydrochloride 100 mg. per cc. we were soon ready to manufacture other products. Unfortunately at this time World War II took from me a valuable assistant so during the war no progress was made, but with the cessation of hostilities we again went into production. Perhaps our greatest aid in this was Don Francke's "Parenteral Medication Formulas", presented at the Institute on Hospital Pharmacy last July. Other valuable adjuncts were "The Vitamins" a brochure of Merck Laboratories, Merck Index, and much information gleaned from time to time from the abstracts in the Scientific Edition of the Journal of the A.Ph.A. along with articles in both editions of the A.Ph.A. Journal.

Up until this time we had kept no records other than those of the actualamount manufactured so decided to bring into our records the

tops and bushings. Note Ultraviolet light at top.

actual savings to the hospital. This of course had to take into consideration the time factor and cost of material should it be bought from outside sources. A book was ruled in the following manner.

DATE	NAME	SIZE	TIME	COST MATERIAL	EQUIVALENT
10-1-46	5% DEXTROSE	18-1000cc	1 3/4 HR. *	44	$13.50

(*Time to be charged at $2.00 per hour)

PERSONNEL TIME

Here I would like to explain how we determined the time factor. Stop watch measurements were made of the time actually put into the product by both the pharmacist and assistants. The time figure for the assistants was then cut in half and added to the time of the pharmacist to give the final figure, This is of course the same as adding to the costs of production $2.00 for that of the pharmacist and 1.00 per hour for the assistants. The equivalent column is the figure we would have to pay should these preparations be purchased.

As to personnel engaged in this work, it consists of the following: pharmacist, two assistants and one girl from Central Service and Supply. We were very fortunate in having the utmost cooperation of the machine shop which has machined for us equipment we could not buy; and also a very competent and well staffed Central Service and Supply to wash the bottles and autoclave the preparations.

This division of authority has been often condemned by leading pharmacists, but in small hospitals this cooperation is essential to avoid duplication of equipment. With a conscientious and cooperative Central Service the results have been excellent. The manufacturers of this type of equipment have been most gracious in working out individual problems and they would be a great help in working out problems where the pharmacist may not have cooperation of other departments. Not all the aforementioned equipment is essential but it adds to the efficiency of the department.

This article is not intended to rehash procedures in the manufacturing of parenteral solutions but rather to point to the economic aspects. Such excellent articles as that of Lee Wolfe's appearing in THE BULLETIN of May-June have covered procedures sufficiently. It should be called to mind however, that in a small institution we deviate somewhat as our production is much smaller. From the pictures you will note that we use a Buchner-Type sintered glass filter and do not make a concentrated solution, but rather, prepare the already diluted solution and filter it directly into the intravenous bottles. Using a five-gallon pyrex glass bottle we make 18-1000 cc bottles and using a 9,000 cc bottle we make an additional 6-1000 cc bottles making a total of 24-1000 cc bottles at each process. The fact that we use two bottles allows us a certain flexibility cutting to the minimum the number of extra bottles of slow moving items we need to keep in stock at one time; i.e., Dextrose 10% in Normal Saline. Twenty-four bottles are manufactured at one time as the carrier and autoclave have this capacity, which is adequate in an institution of this size.

In regard to vial packages the equipment used was copied from page 1641, Figure 544 in Remington' Practice of Pharmacy, Eighth Edition. This equipment was built in our shop, the glass valves being purchased from a laboratory supply house. This is not a difficult piece of apparatus to build and is quite easily used. The needle used in filling vials is made by soldering together two number 18 needles, after cutting one shorter to allow it to act as an air vent. Care must be taken to allow a slight curve on the bent needle to allow for proper cleaning. On such vials that are to be autoclaved after filling, the conventional type needle is used and bottles are capped after filling. All bottles are clamped in stainless steel clamps to prevent caps from being blown off during sterilization.

Empty penicillin vials are used and after washing, rinsing filling and autoclaving are sealed with a gelatin solution of the following formula:

Distilled Water	1380 cc
Glycerin	120 cc
Granular Gelatin	820 Gm
Sodium Benzoate	13 Gm
Cresol	15 cc
Solution Amaranth 5%	100 cc

Mix Gelatin, water and glycerin. Heat until solution is effected. Add remainder of ingredients and strain through cheese cloth.

Drawing of Double Needle

The capped vials are then dipped in the melted gelatin solution and when the gelatin is almost solid the center is cut away with a cork borer of large diameter to allow for the insertion of the needle. Vials which have been sterilized repeatedly are treated with 1 part of hydrochloric acid and 9 parts of water prior to the final rinse.

Routine pyrogen tests and sterility cultures are made on these preparations by the laboratory.

We have found the use of "Acco Cleanser" of the Amalgamated Chemical Co. Philadelphia; for cleaning bottles to be of great help as the chief defense against pyrogens is absolute cleanliness. How effective this system of manufacture is, can be illustrated by the fact we have had, to my knowledge, only one pyrogen reaction since 1937.

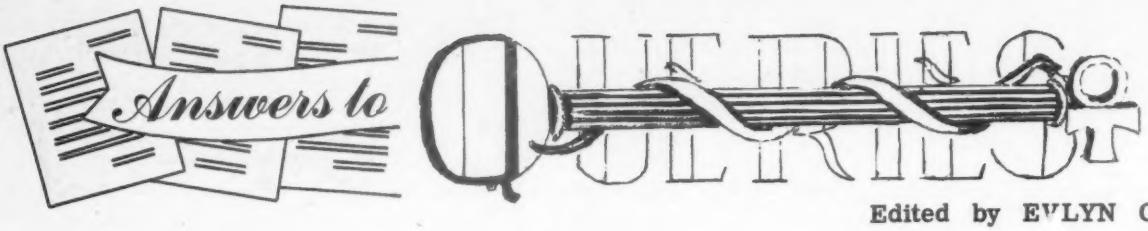
In conclusion I would like to present here a copy of my record book for the month of January 1947 which I believe answers any arguments against the manufacture of parenteral solutions in a small hospital.

MONTHLY PRODUCTION COST AND SAVINGS

DATE	NAME OF PREPARATION	SIZE	COST TIME IN HOURS	COST MATERIAL	EQUIVALENT
1.3.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.3.47	5 % " " in Water	6-1000cc		.13	3.90
1.3.47	Penicillin Vials (Diluted)	45-20 cc	.75	.16	5.40
1.6.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.6.47	Normal Saline	6-1000cc		.02	3.00
1.7.47	Blood Bottles A.C.D.	35-500 cc	2.75	.35	29.75
1.8.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.8.47	Normal Saline	6-1000cc		.02	3.00
1.7.47	Penicillin Vials (Diluted)	90-20 cc	1.50	.32	10.80
1.10.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.10.47	5 % Dextrose in Water	6-1000cc		.13	3.90
1.11.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.11.47	Normal Saline	6-1000cc		.02	3.00
1.11.47	Vials Pyridoxine 50mg/cc	5-20 cc	.75	5.40	26.50
1.11.47	Vials Thiamin HC1 100mg/cc	12-20 cc	1.00	7.20	32.40
1.13.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.13.47	Normal Saline	6-1000cc		.02	3.00
1.14.47	5 % Dextrose in N.S.	24-1000cc	1.75	.59	18.00
1.11.47	Penicillin Vials (Diluted)	90-20 cc	1.50	.32	10.80
1.15.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.15.47	5 % Dextrose in Water	6-1000cc		.13	3.90
1.16.47	5 % Dextrose in Water	9-1000cc	1.75	.17	5.85
1.16.47	5 % Dextrose in N.S.	9-1000cc		.22	6.75
1.16.47	Normal Saline	6-1000cc		.02	3.00
1.17.47	Blood Bottles A.C.D.	35-500 cc	2.75	.35	29.75
1.18.47	5 % Dextrose in N.S.	18-1000cc	1.75	.22	13.50
1.18.47	Normal Saline	6-1000cc		.03	3.00
1.20.47	5 % Dextrose in N.S.	24-1000cc	1.75	.59	18.00
1.21.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.21.47	5 % Dextrose in Water	6-1000cc		.02	3.00
1.22.47	5 % Dextrose in N.S.	24-1000cc	1.75	.59	18.00
1.22.47	Penicillin Vials (Diluted)	90-20 cc	1.50	.32	10.80
1.23.47	5 % Dextrose in N.S.	18-1000cc	1.75	.44	13.50
1.23.47	5 % Dextrose in Water	6-1000cc		.13	3.90
1.24.47	5 % Dextrose in N.S.	24-1000cc	1.75	.59	18.00
1.25.47	5 % Dextrose in N.S.	24-1000cc	1.75	.59	18.00
1.27.47	5 % Dextrose in N.S.	18-1000cc	1.50	.44	13.50
1.27.47	Vitamin B Complex	20-20 cc	3.33	5.00	34.00
1.29.47	5 % Dextrose in Water	18-1000cc	1.75	.39	11.70
1.29.47	5 % Dextrose in N.S.	6-1000cc		.15	3.90
1.29.47	Penicillin Vials (Diluted)	84-20 cc	1.50	.32	10.08
1.30.47	Blood Bottles A.C.D.	35-500 cc	3.75	.35	29.75
1.31.47	5 % Dextrose in N.S.	24-1000cc	1.50	.44	18.00
		Total	53.73	28.65	551.33

Upon analysis we have the following:

Cost of Preparations if Purchased			551.33
Cost of Materials	28.65		
Labor Cost @ $2.00 hr,	107.46		
Total	136.11	Cost	136.11
Representing a saving for the month of			415.22



Edited by EVLYN GRAY SCOTT

A NEW SERVICE TO THE MEMBERSHIP PROVIDED BY THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. MEMBERS ARE INVITED TO SUBMIT QUESTIONS AND PROBLEMS FOR DISCUSSION, TO EXTEND OR MODIFY ANY OF THE ANSWERS GIVEN ON THESE PAGES, AND TO ACTIVELY PARTICIPATE TO MAKE THESE PAGES TRULY AN OPEN FORUM FOR THE ADVANCEMENT OF HOSPITAL PHARMACY.

Dear Hospital Pharmacists,

The answers to the following questions are, so far as we know, workable but not necessarily the best solution to the problems presented. If you have found better solutions, jot them down on a card and mail them to us.

Evlyn Gray Scott
St. Luke's Hospital
Cleveland 4

TETRAETHYL AMMONIUM BROMIDE

R.H. from Toledo, Ohio, wants information on tetraethyl ammonium bromide. The technical grade, not for medicinal use, is manufactured by Eastman Kodak Company and an experimental grade is supplied by Parke, Davis and Company, Detroit, Michigan under the trade name of Etamon. Hospitals that are experimenting with it are using a 10 percent aqueous parenteral solution that may be sterilized in the autoclave. The present work has been with vascular diseases. For detailed clinical observations see page 104 of the July-August, 1946 issue of THE BULLETIN.

PROPYLENE GLYCOL

G. S. from New Jersey wants to know where to buy propylene glycol. Two companies that sell this chemical are Dow Chemical Company, Midland, Michigan and Carbide and Carbon Chemicals Corporation, 30 East 42nd Street, New York 17, New York.

HAEMO-SOL

There are several inquiries as to what is Haemo-Sol? This is a white powder that when dissolved in water, is used in the cleaning of surgical instruments, glassware, etc. Its composition is about as follows:

Disodium Phosphate, heptahydrate	59.2%
Soda Ash	27.8%
Sulfonated organic detergent	5.5%
Sodium Sulfate	7.5%

Among the distributors are A.S.Aloes, St. Louis, Missouri; American Hospital Supply Corporation, Chicago, Illinois; and Hospital Equipment Corporation, New York City.

GABRIEL'S SOLUTION

Sr. M.R. from Colorado, asks for a formula for Gabriel's solution. In the "Extra Pharmacopeia" by Martindale, there is a Gabriel's formula which is used as a local anesthetic in the treatment of various types of pruritus. This formula consists of:

Benzocaine	3%
Benzyl Alcohol	5%
Procaine	1%
Ether	10%
Sterile Olive Oil, qs	100%

BENZYL BENZOATE-D.D.T. EMULSION

D.E.T. from Michigan, writes, "I have been asked by some of our physicians to prepare an emulsion of benzyl benzoate and D.D.T. for use for scabies. They tell me a formula appeared in one of the journals of dermatology."

I think the doctors have reference to an article in "Archives of Dermatology and Syphilology", page 381, April, 1946. The title is "DDT in the Treatment of Scabies, Larva Migrans and Pediculosis Pubic". The following formula is diluted with five parts of water before using.

Benzyl Benzoate	68%

DDT	6%
Ethyl Aminobenzoate	12%
Aerosol (dihexyl sodium sulfosuccinate)	14%

In the conclusion the authors state, "In brief, our cases show the DDT without benzyl benzoate was ineffective in the treatment of scabies and creeping eruption. DDT in combination with benzyl benzoate was found most effective against scabies. Yet this formula has practically no advantage over the usual benzyl benzoate emulsion. DDT in emulsion, ointment, and powder formulas was found exceedingly effective in the treatment of pediculosis pubis. No harmful reactions occured when DDT was used cautiously and in the therapeutic dosage in these cases."

INTRAVENOUS ETHER

E.G.S. from Ohio is interested in information concerning the use and preparation of intravenous ether (diethyl ether) other than for circulation time.

John F. Thompson, chief pharmacist at Touro Infirmary, New Orleans, La., sends this answer; "Dr. Robert Katz has written a paper on the results of treating 65 diabetic patients with intravenous ether solutions. The 2.5% to 3% ether solutions are prepared by chilling the sterile saline or dextrose solutions and ether for twenty-four hours before mixing.

TRIETHANOLAMINE

Sr. J.M. from Ohio would like to know where to obtain triethanolamine. This may be obtained from Carbide and Carbon Chemical Corporation, 30 East 42nd Street, New York 17, N.Y.

During the Hospital Pharmacy Institute at Ann Arbor during July of 1946 questions were turned in to be answered at the panel sessions. The following are from these.

PYROGEN TEST

Where can one get the technique for the rabbit test for the presence of pyrogens?

See page 606, USP XII or page 742, NF VIII. This is not a very satisfactory test but the best that has been devised up to now. A test is needed that would be specific for pyrogen.

INVENTORIES

Is a running inventory for a monthly report practical? What is the average inventory for a hospital of 200 beds?

If you mean a perpetual inventory I would say no except for narcotics. If you mean keeping a daily record of purchases and preparations manufactured I would say yes, even if a monthly report was not prepared. It is quite easy to compile special statistics as needed if such material is available. See answer to similar question in "Practical Edition-J.Am.Pharm.A." page 459 in October, 1946.

Roger Marquand, formerly chief pharmacist at City of Cleveland Hospital and now one of its assistant superintendents, stated in a paper he read on "Purchasing" at an Ohio Hospital Pharmacists Convention, that the inventory for a hospital pharmacy should be one fourth of its yearly purchases. In checking our hospital pharmacy records we found that they were in agreement with this ratio.

SODIUM HYDROXIDE PELLETS

What is the advantage of using sodium hydroxide pellets? Is it because of the ease of weighing?

Yes. I suppose you have reference to the formulas for parenteral solutions that contain sodium hydroxide. If so, from our own experience we have found that, regardless of the use of sticks or pellets, before using in parenteral preparations the sodium hydroxide should be sodium carbonate free. One method to do this, is to make a saturated solution (about 40%) and allow it to stand at least ten days in a pyrex or wax coated container during which time the sodium carbonate will settle. Care should be taken not to stir this sediment up when decanting, or to allow the measured solution to be exposed too long to the air before using or carbon dioxide will be absorbed and the solution will be right back where it started.

TO STERILIZE SULFA POWDERS

Is it necessary to sterilize the sulfa powders for topical use?

If the field to which the sulfas are to be applied is sterile and you wish to keep it so, the powder should be sterilized. Small amounts (5-30 Gms) may be sterilized by heating 4 hours at 145 degrees Centigrade or 1 hour at 160 degrees Centigrade in an oven. Sulfanilamide can be sterilized only at the lower temperature because of its melting point. The sodium salts are too alkaline to be used locally.

DETERMINING pH

Is there any other fairly correct method of determining pH other than with the potentiometer?

Dr. Arthur P. Wyss discusses pH in "The Importance of pH in Prescriptions" on page 17 of

Continued on page 43

NOTES AND

EDITED BY

FRITTED GLASS FILTER ARRANGEMENT

STILBAMIDINE INJECTION 25 mg./cc.

Stilbamidine	2.5 Gm.
Sterile Distilled Water, to make	100.0 cc.

Make solution in a sterile graduate using aseptic technique. Filter through a sterile Corning sintered glass filter (Grade F) or sterile Jena filter #5 and fill into sterile amber serum bottles (10 to 15 cc. size most suitable). Stopper and seal. Sterilization is accomplished by filtration as stilbamidine is not heat stabile, and amber bottles are used as it is photolabile. CAUTION: Stilbamidine is incompatible with sodium chloride.

CHOLINE CHLORIDE SYRUP 25%

A rather palatable preparation of choline chloride has been suggested by Sister Jeanne Marie, Pharmacist; Saint Elizabeths Hospital, Youngstown, Ohio.

Choline Chloride	250.0 Gm.
Citric Acid	1.6 Gm.
Solution of Amaranth 5%	2.0 cc.
Cherry Flavor, Imitation MMR*	3.0 cc.
Distilled Water	120.0 cc.
Simple Syrup, to make	1000.0 cc.

Dissolve the choline chloride and the citric acid in the distilled water, add the other ingredients and mix thoroughly.
Strain through glass wool if necessary.

*MMR, Magnus, Mabee & Reynard, Inc., 16 Desbrosses Street, New York 13, N.Y.

METHYL CELLULOSE AS TABLET BINDER

Methyl cellulose as a granulating and binding agent has proven to be extremely useful in certain tablet formulations. It mixes and sieves easily, helps eliminate sticking during compression and does not hinder disintegration in most cases. Methyl cellulose (Grade 1500 CPS) is the viscosity best adapted to most tablet formulations. All grades of methyl cellulose are available from the Dow Chemical Company, Midland, Michigan. A typical formula using methyl cellulose follows.

PHENACETIN TABLETS 0.32 GM.

Phenacetin Powder	8000.0 Gm.
Corn Starch Powder	1000.0 Gm.
Methyl Cellulose, 1500 cps. 3% aqueous	QS
Purified Talc	250.0 Gm.
Magnesium Stearate	125.0 Gm.

Formula for 25,000 tablets.
Die used 7/16, concave punch.

The amount of methyl cellulose solution required may vary. Between 2500 and 3000 cc. has been used successfully.

GENTIAN VIOLET LUBRICANT

Gentian violet 0.25% in a surgical lubricant base is being used in the treatment of yeast-like infections of the vagina. It is claimed that freshly prepared solutions of gentian violet are more effective. A jel of this type may be readily prepared from the following formula.

SUGGESTIONS

GEORGE L. PHILLIPS

Gentian Violet 3% in Ethanol	10.0 cc.
Surgical Lubricant *, to make	120.0 cc.

Mix thoroughly and place in tubes with neck to accommodate vaginal applicator.

*SURGICAL LUBRICANT

Tragacanth Tears	15.0 Gm.
Propylene Glycol	200.0 cc.
Zephiran Concentrate 12.8%	1.0 cc.
Perfume	0.3 cc.
Distilled Water, to make	1000.0 cc.

Soak and stir the gum intermittently in a mixture of the propylene glycol, distilled water, and zephiran. When free from lumps add the perfume, mix thoroughly and strain thru cheesecloth.

ZEPHIRAN GERMICIDAL SOLUTION

A highly potent rust-resisting solution for the cold sterilization of instruments may be prepared according to the following formula. This formula may replace other formaldehyde germicides with an appreciable economy.

Isopropanol 99%	9000.0 cc.
Methanol Technical	720.0 cc.
Formaldehyde 37%	1440.0 cc.
Solution, Zephiran 12.8%	144.0 cc.
Sodium Nitrite	180.0 Gm.
Distilled Water, to make	18,000.0 cc.

For further reference on Zephiran see:
Comparison of Zephiran to Organic Mercurials' Scientific Edition J.A.Ph.A., Aug. 1945 p.314.
Perfume may be added to the above formula if the odor is objectionable.

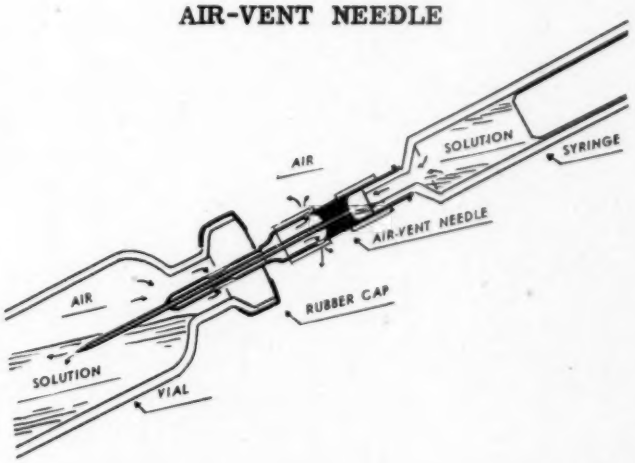
PYRUVIC ACID PASTE 0.7%

Pyruvic acid is being used on burn cases to promote sloughing of dead skin. Thus the burned area may be cleaned up and allow for earlier skin grafting. A convenient paste vehicle for the pyruvic acid may be prepared according to the following formula.

Pyruvic Acid	7.0 cc.
Corn Starch	150.0 Gm.
Sterile Distilled Water qs ad	1000.0 cc.

Thoroughly mix the three ingredients in a double boiler or steam jacketed kettle of suitable capacity. When the starch is thoroughly dispersed, cook with constant stirring to a thick creamy paste. Fill into eight or sixteen ounce ointment jars. All utensils used should be sterilized or rinsed out with boiling water to prevent contamination of the burned area. Pyruvic acid may be obtained from the Eastman Chemical Company, Rochester, N.Y.

AIR-VENT NEEDLE



A suggestion of a clever air-vent needle useful in diluting penicillin and streptomycin has been sent in by Sister Etheldreda of Saint Mary's Hospital, Brooklyn. The air-vent in the needle permits filling of sealed rubber-capped vials with solution, while simultaneously exhausting the air contained in the vial and thus eliminating back air-pressure in the vial. Air-vent needles may be ordered from the T.J. Noonan Company, 911 Boylston St., Boston. The needles cost $3.00 each; a 25 percent discount is given on lots of a dozen.

Edited by SISTER MARY ETHELDREDA

DRUG AND COSMETIC REVIEW. Seventh edition, 1946 - 1947. 453 pages, 8½ x 12". Published by Drug and Cosmetic Industry, 101 West 31st St., New York City 1. Price $3.50.

This very valuable compilation belongs in every hospital pharmacy. Although it is intended as the book for all manufacturers of pharmaceuticals, proprietaries, cosmetics and flavors, it is, moreover, a catalogue of sources of package material, machinery equipment, chemicals and raw materials. A directory and a list of suppliers with addresses is included.

The book is divided into two categories: advertising and directory. The advertising section illustrates packaging material, seals, caps, collapsible tubes, machinery for packeting, tube fillers, mixers, mills, filtering equipment, glass lined tanks, tablet machines, stills, vacuum pumps, pH meters, chemicals, essential oils, botanicals and other raw material products. The second portion of the catalogue is the directory for the sources of the illustrated material.

A section containing a few feature articles gives useful formulas for cosmetic and dermatological preparations and medicinals, such as, ointments of cod liver oil and the sulfonamides. Included is a list of books containing formulas and manufacturing processes of all types likely to be of interest and value to the drug, cosmetic and allied industries.

A TEXTBOOK OF STERILIZATION. By Weeden B. Underwood, B. Sc. in E. E. 172 pages, 1941, 6 x 9". Lakeside Press, Chicago.

The late Weeden B. Underwood is a recognized authority on the subject of sterilization. His text will serve as a valuable guide for hospital pharmacists who prepare sterile medicinals. How steam sterilizes and the autoclave operates is a matter of doubt and perplexity to most technicians. With the help of longitudinal sections of the modern sterilizer, Mr. Underwood clearly explains the principle of steam sterilization. Although the many valves of a sterilizer may be a source of confusion to the operator, this uncertainty is easily clarified by a little reading and study of the illustrations and line drawings of the autoclave.

The section on preparation and sterilization of aqueous solutions is very informative. Each step in this procedure is specifically treated. The period of exposure of a solution, based on the size and type of flask which is always so important, is recorded in tabular form. Preparation of sterile tubing and glassware, which is directly connected with and may be considered the nucleus of correct technique, is clearly and effectively emphasized. The reason for the use of hot air sterilization for specific substances, such as, talc, oils, vaseline and glycerin is covered in another chapter.

This book bears consideration for use as a handy reference in the Operating Room, Central Supply Room and Laboratory. A copy of the book may be obtained from The American Sterilizer Company, Erie, Pa.

PENICILLIN AND OTHER ANTIBIOTIC AGENTS. By Wallace E. Herrell, M.D., M.S., F.A.C.P. 348 pages, 6 x 9", 1945. W. B. Saunders Co., Philadelphia, Pa. Price $5.00.

Dr. Herrell, one of the pioneer investigators with antibiotic agents, presents a thorough and comprehensive review of penicillin, streptomycin, tyrothricin and others of these agents. It is an excellent handbook for information as to exactly what these antibiotics are and how they act.

Pharmacists are at all times expected to know the source, method of preparation, physical and chemical properties, method of standardization and action of medicinals. A liberal amount of discussion is devoted to these points by the author. The accepted methods for determining the concentration in body fluids and detailed explanation of several proved methods of administration of penicillin, along with uses, dosage and effects are liberally discussed.

Much of the book is devoted to treatment by penicillin of infections of the blood stream, heart, central nervous system, eye, respiratory system, skeletal system, skin and soft tissue, and the genito-urinary tract. Less space is given to the other agents streptomycin, tyrothricin etc. The text may be considered as containing the most recent and reliable information on these newer drugs.

BACTERIOLOGY AND ALLIED SUBJECTS. By Louis Gershenfeld, P.D., B.Sc., Ph.M. 561 pages, 17 x 24.75 cm., 1945. Mack Publishing Company, Easton, Pa. Price $6.00.

In addition to its excellence as a textbook on bacteriology, the book has several features of especial interest to pharmacists who control the sterile solutions laboratory in a hospital.

Notice is given to control of bacteria in Part III, which pointedly explains the theory of disinfection and sterilization. Action of physical agents, such as: light, air, drying, electricity and cold on bacteria and the utilization of these properties for stabilizing and preserving medicinal agents is explained. Ultraviolet light applied to better control the sanitary quality of air supply in pharmaceutical laboratories in order to aid in obtaining sterile preparations is discussed. The practical laboratory methods of sterilization considered include: filtration - with emphasis on the Berkefeld, Mandler candles, and Seitz filters; heat - by direct flame, hot air, moist heat, steam and steam under pressure; oil, salt and other baths. Information on the use, care, cleansing and sterilization of filter candles, so difficult to obtain elsewhere, is given in detail. The procedure to be followed for the sterilization of a definite substance may be inferred from a study of these pages.

Incorporated also is a chapter on the preparation of sterile medicaments. It describes aseptic technique and the numerous points to be considered and analyzed in preparing parenteral medication. The object of this analysis is to meet the U.S.P. requirements for: chemicals, pyrogen-free water, containers and other equipment, sealing, sterility tests, test for pyrogen etc. Included is a table of suggested sterilization procedures for solutions and suspensions of some of the commonly employed drugs used for parenteral administration.

The section on disinfection, which covers inorganic and organic antiseptics, phenol and coal tar derivatives, and the modern alkyl phenolic compounds; the discussion of animal parasitology, insect control, insecticides, biologicals and allergens will be of interest to teachers of Materia Medica and Pharmacology who find the presentation in ordinary texts inadequate.

Timely Drugs

TRIDIONE SOLUTION, DIHYDROERGOTAMINE. FOLIC ACID WITH IRON, AND STILBAMIDINE ARE DRUGS OF TIMELY INTEREST TO THE HOSPITAL PHARMACIST.

TRIDIONE . . . used in the treatment of epilepsy has now been introduced in a new dosage form. It is available in a flavored aqueous vehicle containing 150 mg. in each 4 cc. and is especially suitable for administration to children. The dosage of the solution must be determined by the response of the patient. The adult dose varies from 6 to 14 teaspoonfuls a day in divided doses. For children under six years of age, the average dose is 2 teaspoonfuls four times daily. Tridione, available from Abbott Laboratories, has been supplied in 300 mg. capsules for some time. The capsules are given in dosage of 300 mg. three times daily, usually.

DIHYDROERGOTAMINE . . . has now been released by the Sandoz Chemical Works, New York City 14, in 1 cc. ampules containing 0.5 mg. of the compound. Found to be a safe and efficient drug for aborting acute attacks of migraine, dihydroergotamine is a new chemical formed by the hydrogenation of the natural ergot alkaloid ergotamine. In addition to being just as effective as ergotamine tartrate in the relief of acute attacks of headache, dihydroergotamine is much less toxic and does not possess the uterine stimulating action of ergotamine. The recommended dosage is 0.5 to 1.0 mg. injected subcutaneously, intramuscularly or intravenously. This dose may be repeated in an hour, if necessary.

FOLIC ACID WITH IRON . . . Lederle Laboratories has released a combination of folic acid and iron under the name of Folvron. Each capsule contains 1.7 mg. of folic acid and 195 mg. of ferrous sulfate (61 mg. of metallic iron). Folic acid, one of the vitamin B-complex, is used in the treatment of macrocytic anemias, apparently supplying the material essential for the maturation of the red blood cells. The common macrocytic anemias include sprue, macrocytic anemia of pregnancy, macrocytic anemia accompanying pellagra, macrocytic gastrointestinal anemia, and pernicious anemia. The presence of ferrous sulfate increases the range of the drug to include the treatment of secondary or iron deficiency

Continued on page 43

THE VETERANS ADMINISTRATION PHARMACIST

EDITED BY EDDIE WOLFE

A WELCOME FROM THE CHAIRMAN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

To The New V.A. Members:

A letter from Mr. Wolfe of Mt. Alto Hospital was indeed very welcome for two reasons; first, the news of the enthusiastic response to the drive for new members for the A.S.H.P. from your group and second, the courtesy that he, as Editor of the V.A. Section of THE BULLETIN, extended to me to use some of your space for a greeting.

I do want to stress the value of the space given to the Veterans Administration section. While we are all hospital pharmacists and, as such, have common problems that can be shared, you have some that are yours particularly. Your section should be used for these. It can be as valuable as you want to make it. Every one of you has something to offer and Editor Wolfe's problem should be to find enough space for the material contributed instead of the reverse. Why not make this section the outstanding one?

The American Society of Hospital Pharmacists is too young to have a long history of accomplishments. It has been, however, the only medium that has brought to the attention of the hospital administrator, the physician, the various governmental agencies, and pharmacy at large, the importance of our particular field in Public Health.

We have yet to solve just what part the hospital pharmacy is to play in the Public Health field. How can it do the most good? We have yet to solve just what part the A.S.H.P. is to take in the service of the hospital pharmacist. Here we need your help with suggestions and advice.

We welcome you to membership. Let it be an active membership, not just spectatorship.

Hans Hansen, Chairman
American Society of Hospital
Pharmacists

DECENTRALIZED CONTRACTS

Dear V. A. Editor:

Congratulations on your newly appointed editorship of the V.A. section of THE BULLETIN of the American Society of Hospital Pharmacists. I am glad to hear that we have been allocated space. This should encourage membership and participation for our own professional good.

I have very little to offer, but I will give a suggestion on Decentralized Contracts since the new ones will be coming out the 1st of April. Other pharmacists may have a better method than mine of keeping track of them before the index comes out, but I will offer it for what it is worth.

As the Decentralized Contracts begin coming in I put a tab on the edge of the front sheet of each schedule with adhesive tape and write the schedule number on it; and, sometimes, if the whole schedule belongs to just one or two companies, I print their names below the schedule numbers.

Then on ruled scratch paper, I rule four, $\frac{1}{2}$ inch columns on the right side of the paper. In the large space on the left side I list alphabetically the companies whose schedules I have received, and their schedule numbers in the columns on the right.

We pharmacists know the manufacturers of most items, and this gives a simple quick index to finding the schedules of the company whose products we may want.

The Supply Office employees call frequently and it is gratifying to be able to give them quick information concerning Schedule and Contract numbers.

If this is done as new schedules come in, it takes but a few minutes each day to keep the list current. Even though the index comes to us around June, I continue to keep this information up to date as more contracts continue to come in after the index is out and are covered only by

my own list of manufacturers and schedule numbers.

I feel there is much to be accomplished toward raising the recognition of pharmacists in the V. A., and I believe it can best be done through the A.S.H.P. and the A.Ph.A.

Another thing that should be brought to attention concerns the vacancies in the pharmacy positions in grade P-3. When there is such a vacancy, efficiency ratings and years of service should be the principal deciding factors rather than personal selection for other obvious reasons. However, this may change after pharmacists are appointed over the different regions.

J. D. Jones, Pharmacist
V.A. Hospital
San Fernando, Calif.

In the next issue of THE BULLETIN we are going to inaugurate a new feature in the V.A. section. It will consist of questions submitted by V.A. Pharmacists concerning the problems confronting them in their work. This column is YOURS and will be what you make it, so submit all your questions promptly and we will answer them in the next issue.

Your V.A. Editor

V. A. BRANCH OFFICES

As a step in the development of the plans for improved Pharmacy Service in the V.A., grades for pharmacists have been raised to include P-3 and P-4, W. Paul Briggs, director of Pharmacy Service, has announced. These professional grades, now open to qualified pharmacists, carry salary ranges of $4149 to $4902 and $4902 to to $5905, respectively; however, grades of P-1 ($2644 to $3397) and P-2 ($3397 to $4149) are open to those otherwise qualified.

Under the present law, all new appointees as pharmacists must hold a Bachelor of Science degree in pharmacy from one of the accredited colleges and must be registered in one of the states or the District of Columbia.

Pharmacy divisions have been established in each of the thirteen V.A. branch offices. Following is a list of the Branch Offices with the states under their jurisdiction:

Branch No. 1, 55 Tremont St., Boston, Mass. Connecticut, New Hampshire, Massachusetts, Rhode Island, Maine, Vermont.

Branch No. 2, 299 Broadway, New York City, New York, Puerto Rico.

Branch No. 3, 128 North Broad St., Philadelphia, Pa. Delaware, New Jersey, Pennsylvania.

Branch No. 4, 900 North Lombardy St., Richmond, Va. Virginia, District of Columbia, West Virginia, North Carolina, Maryland.

Branch No. 5, Atlanta 3, Ga. Alabama, South Carolina, Georgia, Tennessee, Florida.

Branch No. 6, 52 South Starling St., Columbus, Ohio, Kentucky, Michigan, Ohio.

Branch No. 7, 226 West Jackson Boulevard, Chicago, Ill. Illinois, Indiana, Wisconsin.

Branch No. 8, Fort Snellings, St. Paul, Minn. Iowa, North Dakota, Minnesota, South Dakota, Nebraska.

Branch No. 9, 420 Locust St., St. Louis, Mo. Arkansas, Oklahoma, Kansas, Missouri.

Branch No. 10, 1114 Commerce St., Dallas, Tex. Louisiana, Mississippi, Texas.

Branch No. 11, 820 Second Avenue, Seattle Wash. Idaho, Washington, Oregon, Alaska, Montana.

Branch No. 12, 180 New Montgomery St., San Francisco, Calif, Arizona, Philippine Islands, California, Hawaii, Nevada.

Branch No. 13, P.O. Box 1260, Denver Federal Center, Denver, Colo. Colorado, Wyoming, New Mexico, Utah.

Applications, and requests for information should be addressed to the Chief Pharmacist, Veterans Administration, Branch Office.

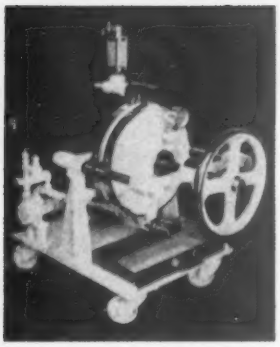
The Editor takes this opportunity to thank the following V.A. Pharmacists for letters and articals which will be published in the near future.

W.R. Spence Branch No. 4	E.J. Lalonde Branch No. 9	A.W. Davidson Dearborn, Mich.
D.D. Tonjec San Diego, Calif.	V.O. Trygstad Branch No. 8	W.C. Anderson Branch No. 3
C. Schwartz Branch No. 12	E.G. Myers Branch No. 13	J.D. Jones San Fernando, Calif.

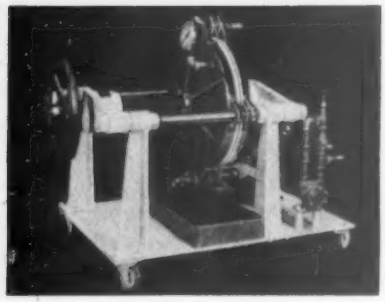
USEFUL EQUIPMENT for the hospital pharmacy

by

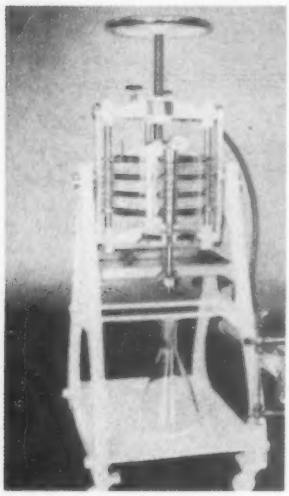
Edited by ALBERT P. LAUVE



Ertel EBW, Capacity 3 gpm



Horman Junior, Capacity 2-5 gpm



Ertel EDB Pyrogen Retentive

Pressure, With Fritted Disc

Immersion, With Fritted Disc

Federal, state and local funds in all sections of the nation are being ear-marked for hospital construction and better health service. While hospital administrators and architects are planning these new hospitals, it must be assumed that hospital pharmacists will also be expected to assist and cooperate in this ambitious program by contributing their share of technical knowledge in planning and selecting the kind of equipment best suited for the pharmacy department. Pharmacy equipment will be a matter for serious consideration for many hospital pharmacists and the purpose of these articles is to assist the pharmacist in selecting the kind of equipment best suited to his particular requirement.

FILTERING EQUIPMENT

Filtering procedure is a common practice in all hospitals. Bulk filtration is both slow and messy where gravity filtration is used. Many devices have been advanced to replace filter paper, which, it must be admitted has many disadvantages. Fortunately, we have today a wide selection of filtering processes, each designed to fit the need of special cases.

For routine bulk filtration, such as is carried on in most hospitals, the asbestos disc filter is perhaps the most practical and efficient. They are available for filtering liquids in quantities of less than one gallon per minute up to 100 gallons per minute. They are built in several different sizes and models to help facilitate the problems found in the diversified fields of filtration. The asbestos filter sheets are available in different grades from coarse to ultrafine. The EBW Model equipped with a three gallon per minute pump and electric motor is an ideal filter for routine use in the hospital pharmacy. They are manufactured by the Ertel Engineering Corporation, Kingston, N.Y. Similar equipment may also be purchased from F. R. Hormann and Co., Inc., Brooklyn N.Y.

For operations requiring finer filtration such as is required for dextrose and saline solutions, the Republic Filters, Inc., Newark, N.J. or the Ertel EDB, Model P, Pyrogen and bacterial retentive filters are recommended.

FRITTED GLASS FILTERS

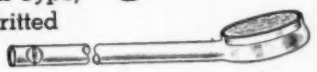
Where the amount of solution to be processed is small, such as is often the case with various parenteral solutions, a wide variety of filtering mediums are available. The fritted glass filters for instance are popular with many pharmaceutical manufacturers. There are a variety of shapes available. They can

be washed and sterilized repeatedly, used over and over. Five porosities are available--ultrafine to coarse. These filters offer one great advantage in that they cannot contaminate any solution and are not destroyed or affected by materials commonly destructive to other filtering media. The filtered solutions are highly polished and free from lint or fibers. They are manufactured by the Corning Glass Works, Corning, N. Y.

Buchner Type, With Fritted Disc

Sealing, Reduced Ends, With Fritted Disc

Gas Dispersion, Vertical Type, With Fritted Disc



DIATOMACEOUS EARTH FILTERS

The candle type filters of which there are several types on the market are also popular type filters in many laboratories. They are available in various porosities to meet particular needs. They offer some disadvantages, however. They must be tested from time to time for leakes. Cleaning the filter is a tedious process and flushing equipment is necessary to do a good job. They must be sterilized after each operation. They are good filters, however, if properly used.

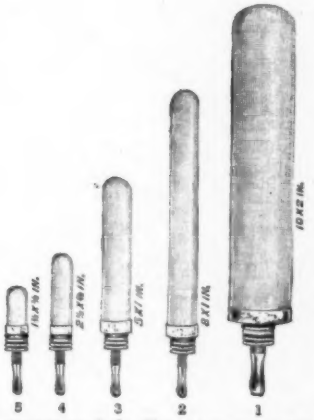
PORCELAIN FILTERS

A new type of candle filters, known as the Selas micro-porous porcelain filters are now available. The micro-porous porcelain filters can be applied to a great variety of processes involving filtrations of all types. The extensive series of porosities available can be efficiently adapted to all the filtrations from preliminary clarification to final sterilization.

SEITZ FILTERS

The Seitz filters, now manufactured in this country by Republic Filters, Inc., Newark 4, N.J. are also available in different sizes and models. They are easily cleaned and may be sterilized as often as necessary. The asbestos filter disc is discarded after each use. They have the disadvantage of shedding fiber into the filtered solution. This occurance can be avoided by placing a piece of fine bolted silk between the asbestos disc and the screen.

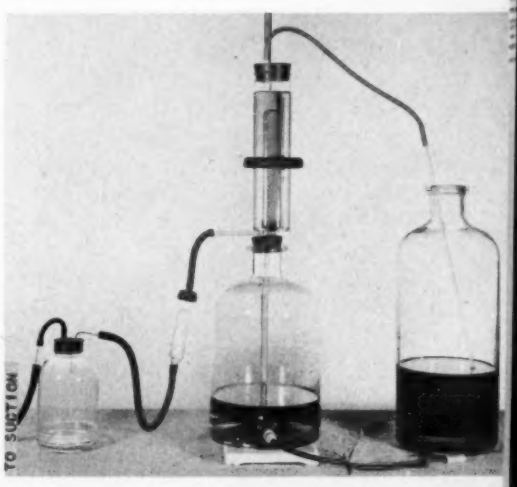
Good filtering equipment is necessary in this modern age, but each individual pharmacist must decide what is best for his particular requirement. Regardless what is claimed for a piece of equipment, its final proving ground is in your laboratory. What it does there is the real test of its value and the real endorsement of its efficiency. So make certain you know what you want and act accordingly.



Of diatomaceous earth for filtering serum or similar materials. The metallic headpieces are of heavy brass, nickel-plated and provided with a new feature whereby the possibility of leakage is practically removed. Each filter cylinder is marked with the pounds of pressure air test that it will stand. For pressures from 6 to 9 lbs.

No.		5	4	3	2	1
Length	in.	1 3/8	2 1/2	5	8	10
Diam.	in.	5/8	5/8	1	1	2
Length of Nipple	in.	2	2	2	2	2 1/2
Diam. of Nipple	in.	3/16	5/16	5/16	5/16	1/2

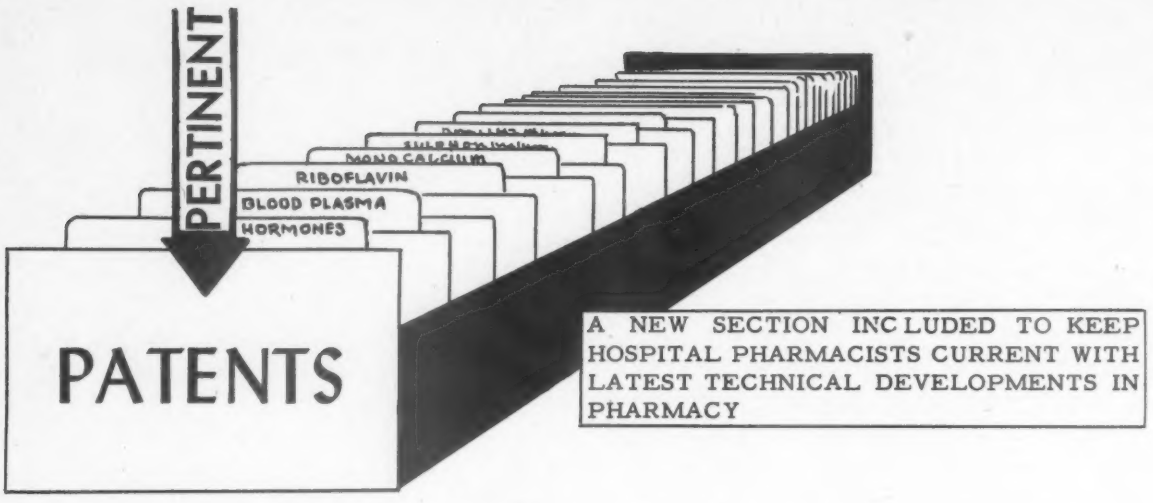
Mandler Filter Cylinders



Filtration with Mandler filter

No. 3 Open Type For Vacuum

No. 6 Closed Type For Pressure or Vacuum



GELATIN CAPSULE WITH ENTERIC PROPERTIES

A gelatin capsule with enteric properties may be obtained by incorporating neutralized cellulose acetate hydrogen phthalate in the gelatin mixture and tanning the prepared capsules by immersion in a 1 percent formaldehyde solution for 45-60 seconds according to U. S. patent 2,390,088, by Sereck H. Fox and Laurene P. Opperman (to Gelatin Products Corp.) Chemical Abstracts, 40:1288, March 10, (1946)

SOLUBLE SULFUR PREPARATIONS

Frank E. Stirn (to Lederle Laboratories, Inc) U. S. patent 2,390,746. Heating a mixture of sulfur, calcium oxide, and a polyhydric alcohol yields an unidentified product useful in the treatment of dermatological conditions. To propylene glycol, 150 grams, add calcium oxide, 30 grams, and powdered sulfur, 15 grams. Heat slowly to 140° (reaction is exothermic at 100°) and hold at 140° for 30 minutes. Cool to 25° and filter. The product reacts with moisture on the skin slowly to liberate reducing substances including H_2S. Mix CaO_2, precipitated sulfur, 1, and propylene glycol 10 parts; heat on a boiling water bath until the temperature of the mixture is 115°, continue heating for 2.5-3 hours with occasional stirring, then filter while hot. To 100 parts by weight of the filtrate add 20 parts by volume of a 40% solution of H_3BO_3 in propylene glycol to bring the pH to 9.0-9.2, then heat the mixture to 80°. Mix Aerosel OT 0.1, camphor 2.0, menthol 0.8, eucalyptus oil 0.6, benzyl alcohol 10.0 and propylene glycol 13.5 parts and heat to 80°. Melt Carbowax 4000, 70 parts and mix with triethanolamine, 4 parts at 80°. Add the two latter solutions to the sulfur solution and stir until cool. The product is an ointment which can be tubed or jarred and kept for an indefinite period without decomposition. Chemical Abstracts, 40; 1286, March 10 (1946)

BLOOD PLASMA

Naurice M. Nesset (to Baxter Laboratories, Inc). U. S. patent 2,390,727. The major portion of the plasma is separated from the blood cells without centrifugation or refrigeration. Add an anticoagulant, e.g., sodium citrate or disodium hydrogen phosphate, to the blood. Add methyl cellulose (0.025-0.2%), which acts as an accelerator, and agitate to obtain a thorough mixture. Allow to stand for 8-10 hours. The clear upper layer of plasma can be drawn off and is ready for use. If polyvinyl alcohol is used as the accelerating reagent a substantially water-soluble product of relatively low viscosity is preferable. If only the serum is desired the anticoagulant may be omitted. Chemical Abstracts, 40:1287, March 10, (1946)

WATER DISPERSIBLE HORMONE PREPARATIONS

Arthur E. Meyer (to The Maltine Co.). U. S. patent 2,394,628. An amount of hormone sufficient for 1 dose and a crystalline retarding agent are aseptically sealed in a bottle into which water can be injected to prepare a suspension suitable for injection. A 3% solution of methenamine in alcohol is treated with estrogenic hormone so that each cc. of solution contains 1 milligram of estrogenic hormone. A measured amount of solution is filled into a container, the solvent evaporated and the container sealed under sterile conditions with a perforable rubber closure. Nicotinamide can be used in place of methenamine. The dried hormone mixture which deposits on the walls of the container can be kept for a long time; while the aqueous suspension can be used several weeks after preparation. Chemical Abstracts, 40:2272,

April 20 (1946)

MONOCALCIUM CITRATE

Richard S. Nicholls (to Miles Laboratories, Inc.). U. S. patent 2,396,115. A water soluble calcium salt suitable for oral administration is prepared by mixing precipitated calcium carbonate 1 mol - and powdered anhydrous citric acid 2 mols and adding 185 milliliters water with continual stirring. Effervescence occurs and the temperature gradually rises. After 6-9 minutes the stirrer is stopped and in 12 minutes the paste has "set" to a practically dry, friable, white product which is allowed to stand overnight, then broken up, dried at 120-5°F., and powdered. The product forms an opalescent solution due to the formation of a small amount of dicalcium citrate. When 2.1 mols of citric acid are used to 1 mol of calcium carbonate the product is completely soluble in water. Both products can be mixed with $NaHC0_3$ to form mixtures that yield effervescing solutions when added to water. When products prepared with 2.1 or more mols of citric acid are extracted with acetone, to remove the excess acid, practically pure $Ca(C_6H_70_7)_2.2H_20$ is obtained. One part of the purified salt dissolves in 5 of water at 20-23° to give a practically clear solution. Chemical Abstracts, 40:2942, May 20 (1946.)

NEW WATER SOLUBLE SULFONAMIDES

The preparation of new water-soluble derivatives of sulfanilamide and it's N^1 substituted compounds are described in U. S. patent 2,374,791 assigned to Parke, Davis and Company by Edward W. Tillitson. A solution of 375 grams of dextrose and 145 grams of $NaHS0_3$ in 500 cc. water is heated to boiling and 198 grams of sulfanilamide is added. Boiling is continued until the volume of the solution is reduced to 600 cc. A clear, viscous solution containing the equivalent of 0.33 grams sulfanilamide per cc. is obtained. The solution can be diluted to any concentration or it may be evaporated to dryness to give a dry solid, readily soluble in water. About 30 to 40 times as much of the powder can be brought into solution as is possible with sulfanilamide itself. The sulfanilamide-dextrose sodium sulfonate product has the same order of antiseptic power as an equivalent amount of sulfanilamide.

The reaction can also be carried out by fusing the reactants together in the dry state. Thus, 472 grams dextrose is heated to 155° and 181 grams $NaHS0_3$ rapidly stirred into the fused dextrose. To the pasty mass there is then added with stirring 250 grams sulfanilamide after which the hot material is spread out in a thin layer and cooled in vacuo. The reaction product is identical with that obtained from aqueous solutions. Chemical Abstracts 40:1635, March 20 (1946)

RIBOFLAVIN SOLUTIONS

Three methods of increasing the solubility of riboflavin have been recently patented.

Morris E. Auerbach (to Winthrop Chemical Co. Inc.). British 560,631. A riboflavin composition in which the aqueous solubility of the riboflavin materially exceeds 12 milligrams per 100 cc. of water at room temperature consists of at least 0.02% riboflavin and an alkali metal borate in an amount corresponding to at least one gram-atom of boron per gram mol of riboflavin. The pH of this composition, in aqueous media, is in the range of from substantial neutrality to approximately 10. Chemical Abstracts 40:2593, May 10 (1946)

Henry C. Miller (to Eli Lilly & Co.). U. S. patent 2,395,378. Water soluble salts of benzoic acid and its amino or hydroxy-substituted derivatives are used as solubilizing agents for riboflavin in aqueous solutions. Sodium salicylate 62.5 grams is dissolved in 62.5 cc. water to make 100 cc. of solution. Roboflavin 12 grams is added and agitated until a solution (pH about 6.7) is obtained. Other constituents of the vitamin B complex can be incorporated in the solution. The solution must be sterilized before parenteral use. Riboflavin in concentrations of 1.0, 2.0, and 120.0 milligrams per cc. requires sodium salicylate 12-15, 25, and 625 milligrams per cc. to effect solution. Alkali benzoates, magnesium salicylate, sodium para-hydroxybenzoate, sodium para-aminobenzoate, and monoethanolamine salicylate can be used as solubilizing agents. Sodium benzoate 10 grams is dissolved in 80 cc. distilled water, 0.2 grams riboflavin is added and the mixture refluxed until solution is effected. The solution is then diluted to 100 cc. with water. Chemical Abstracts 40:2594, May 10 (1946)

Douglas V. Frost (to Abbott Laboratories). U.S. patent 2,388,261. Solutions of riboflavin suitable for injection are prepared by forming complexes with H_3B0_3 and borax. Suspend 0.03-0.1% of pure crystalline riboflavin in water, add 0.1-2.0% of H_3B0_3, and heat at 80-100° until riboflavin dissolves. The pH can be adjusted with Na_3P04 or Na_2HP0_4. Grind together 1 part of riboflavin and 25 parts of borax and dissolve in 1000 parts of water. Add about 7.1 parts of HC1 to pH 6.3-6.6 and heat for 2 hours at 85-90°. Other compounds may be added after the solutions have been prepared. Chemical Abstracts 40:683, February 10 (1946)

NEWS ITEMS

INSTITUTE SCHEDULED

The 1947 Institute on Hospital Pharmacy will be held at the Continental Hotel, Chicago, May 19 to 23. Intended to interest primarily pharmacists of hospitals from 100 to 300 bed capacity, the objective of the institute will be centered about the practical economics of hospital pharmacy. Consistent with this objective, the institute will be devoted largely to the following themes:

A. General business principles and their relationship to the economics of hospital pharmacy.

B. Basic factors in good purchasing and the application of these practices to current practical problems in the pharmacy.

C. The place of manufacturing in the hospital pharmacy with examples of its economic value to the hospital.

D. The use of Annual Reports as a measure of accomplishment and progress and their use in promoting the further economical development of the hospital pharmacy.

In addition to the above subjects on the institute program, the curriculum will include other subjects, such as manufacturing of a wide variety of pharmaceuticals and opportunities for instruction in the hospital by the pharmacist.

Arrangements for the institute were made by Dr. Hugo V. Hullerman of the American Hospital Association, Dr. Robert P. Fischelis of the American Pharmaceutical Association and Mr. Hans S. Hansen of the American Society of Hospital Pharmacists. Mr. Hansen is local chairman of the institute. Other members of the local committee include Paul F. Cole, Marjorie Moburg and L. G. Klemme.

The fee for the institute is $35.00, which includes one meal a day. Applications for the institute may be obtained from Hugo V. Hullerman, M.D., Assistant Director, American Hospital Association, 18 East Division Street, Chicago 10, Illinois.

LEDERLE SPONSORS NATIONWIDE TALK ON HOSPITAL PHARMACY

"The Modern Hospital Pharmacy" will be the topic of a discussion by Mr. Don E. Francke, chief pharmacist, University Hospital, Ann Arbor, Michigan, and editor of THE BULLETIN, on Monday night, March 31 over the nationwide network of the American Broadcasting Company. Sponsored by Lederle Laboratories Division of American Cyanamid Company, the program is one of its series "The Doctors Talk It Over". The local time for the broadcast may be found in your newspaper listed as "The Doctors Talk It Over" which is scheduled every Monday night.

OHIO SOCIETY HOSPITAL PHARMACISTS PLAN CONVENTION

Meeting with the Ohio Hospital Association April 8 and 9 at the Deshler-Wallick Hotel, Columbus, the Ohio Society of Hospital Pharmacists have planned a splendid program for its members. A portion of the meeting has been arranged to cover several topics of vital interest to hospital pharmacy. "Hospital Experience as Related To Apprenticeship" will be the subject of a talk by Byron C. Spoon, president of the Ohio Board of Pharmacy. Roundtable discussions will be held on the topics "Why the Membership of the State Board of Pharmacy Should Include a Hospital Pharmacist" and "Should all Hospitals Doing Compounding be Required to Employ a Registered Pharmacist". Evlyn Gray Scott, Rose S. Lenga and Roy Wise will be among the speakers.

Other scheduled papers include: "Collyria" by Dr. Earl P. Guth, professor of pharmacy, Ohio State University; "The Veterans Prescription Service" by Victor L. Keys, executive secretary, Ohio State Pharmaceutical Association; "Pharmacy Moves Forward" by Dr. L. J. Klatz, dean of the College of Pharmacy, University of Cincinnati; and "Drugs of the Bible" Elvin B. McGrady of Ohio State University.

Lowell Ruff of Ohio State University is chairman of the Program Committee and president-elect of the O.S.H.P. Roy F. Wise present chairman of the group will preside and give the address of welcome.

TRI-STATE HOSPITAL PHARMACISTS MEET MAY 5, 6, 7 IN CHICAGO

The Tri-State Hospital Assembly extends an invitation to all Midwestern hospital pharmacists to attend its seventeenth annual session. For the first time the pharmacy section will be sponsored by the American Society of Hospital Pharmacists under the chairmanship of George L. Phillips of University Hospital, Ann Arbor, Michigan. The speakers will all be practicing hospital pharmacists presenting a diversified program covering several important phases of hospital pharmacy.

The sessions will be held at the Palmer House in Chicago, May 5, 6 and 7. Chairman Hansen of the American Society of Hospital Pharmacists will open the sessions with a message of greetings, Tuesday May 6 at 1:30 P.M. "Interdepartmental Relationships" will be the subject of a talk by Jane Bannister of Columbia Hospital, Milwaukee. Gloria Niemeyer, secretary of the newly established Division of Hospital Pharmacy, will discuss "Coordination and Development of Hospital Pharmacy as Planned by the American Society of Hospital Pharmacists and the American Pharmaceutical Association". "A Cost Accounting System for the Hospital Pharmacy" will be discussed by Jane Rogan of Evangelical Deaconess Hospital, Detroit. Paul Cole of Michael Reese Hospital, Chicago will talk on "New Drugs". "Purchasing, Administration and Formulation of Policies" will be the subject of a discussion by Dorothy E. Tobin of Foote Memorial Hospital, Jackson, Mich., while Laurence T. Lyon of Hurley Hospital, Flint will talk on "Hospital Pharmacy Management".

HOSPITAL PHARMACIST ON EXECUTIVE COMMITTEE OF NEW RESEARCH FOUNDATION

I. THOMAS REAMER, chief pharmacist at Duke Hospital, Durham, North Carolina and former secretary of A.S.H.P. has been appointed to the Executive Committee of the recently established North Carolina Pharmaceutical Research Foundation. The purpose of the new foundation is to promote pharmaceutical education and research at the School of Pharmacy, University of North Carolina and throughout the state.

IRVIN A. FRIESEN, formerly at Boulder Sanitorium and Hospital, Boulder, Colorado is now chief pharmacist at Washington Sanitarium, Takoma Park, Maryland.

JOE VANCE has been appointed Assistant Superintendent, South Highlands Infirmary, Birmingham, Alabama. Mr. Vance recently served four years as Hospital Corps Officer in the Navy. He holds an A.B. in Journalism from Birmingham Southern College, Birmingham, and a B.S. in Pharmacy from Howard College, Birmingham. He succeeded D. O. McClusky, Jr., who was appointed Administrator of the Druid City, Hospital, Tuscaloosa, Alabama.

PRACTICAL EXPERIENCE

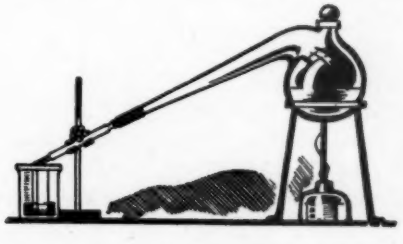
No hospital pharmacy in the United States can be approved for full credit for practical experience if the recommendations of the National Association of Boards of Pharmacy are adopted by the State Boards of Pharmacy. This will be true even if the hospital pharmacies surpass all basic pharmacy requirements for the granting of credit for experience!

HANSEN APPOINTS LEGISLATION COMMITTEE

A Committee on Legislation Affecting Hospital Pharmacy has been appointed by Hans S. Hansen, chairman of the Society. Chairman of the newly appointed committee is Leo F. Godley of New York University Clinic. Other members of the committee are Herbert L. Flack of Jefferson Medical College Hospital, Philadelphia, and Don E. Francke of University Hospital, Ann Arbor, Michigan.

REFUNDS DISCONTINUED TO AFFILIATED CHAPTERS

By a vote of the membership at the 1946 annual convention refunds to affiliated chapters of the Society were discontinued. At that time it was pointed out that since THE BULLETIN costs far exceed $2.00 per year per member, the customary refund of $1.00 per member would have to be discontinued. The only alternative was to discontinue or to greatly reduce the size of the publication. When remitting dues for the membership of affiliated chapters, the local secretaries are requested to send $3.00 for each member. Dues for the American Society of Hospital Pharmacists should now be sent to Gloria F. Niemeyer, secretary of the Divison of Hospital Pharmacy, 2215 Constitution Avenue, Washington 7, D.C.



ORGANIZATION NEWS

Edited by HERBERT L. FLACK

HOSPITAL PHARMACISTS OF CHICAGOLAND

Seventy-five persons were in attendance to enjoy a dinner meeting given by the Wm. S. Merrill Company to the Hospital Pharmacists of Chicagoland on Tuesday, 14 January. Of this number fifty were hospital pharmacists, fifteen were associate members, and ten were guests. Dr. Sharp, of the Merrill Company, presented a very interesting lecture on "Amino Acids." Following Dr. Sharp's presentation, the officers for the year 1947 were installed. These officers are: Chairman, Mr. L. G. Klemme, Elmhurst Hospital, Elmhurst; Vice-Chairman, Miss Marjorie Moberg, Illinois Masonic Hospital, Chicago; Treasurer, Mr. I. Weber, Jackson Park Hospital, Chicago; Recording Secretary, Miss Mabel Kettering, Billings Hospital, University of Chicago; and Corresponding Secretary, Mr. Paul F. Cole, Michael Reese Hospital, Chicago. Following the installation of officers, the Tri-State Hospital Assembly meeting to be held at the Palmer House, Chicago, on 5, 6, and 7 May was discussed with specific reference to activities of the Chicago hospital pharmacists.

THE CLEVELAND SOCIETY OF HOSPITAL PHARMACISTS

The Cleveland Society of Hospital Pharmacists met in the Amphitheatre of University Hospitals on the evening of 4 December. Prior to the business meeting Mr. Bundt of Toledo presented a film showing his professional stores. Mr. Huepenbecker one of Mr. Bundt's pharmacists read a paper on the manufacturing of pharmaceutical preparations. Mr. Stimson announced that on 18 December in the Little Theatre of the Public Auditorium, the American College of Surgeons would conduct a panel discussion on hospital problems. Mr. Stimson was elected to represent hospital pharmacists at that meeting. The Membership Committee reported three persons being considered for membership: Mr. Crooker, representative of Ciba, and Miss Margaret B. Remner, and Miss Agnes Spitulski, intern pharmacists at Lakeside Hospital. Seventeen members and five guests attended this meeting.

THE MASSACHUSETTS SOCIETY OF HOSPITAL PHARMACISTS

The Massachusetts Society of Hospital Pharmacists met on Wednesday, 15 January at three P.M. in Beverley Hospital. Miss Anna Varvas, chief pharmacist at Beverley Hospital was hostess for the day. The following officers were elected for the year 1947: Chairman, Mr. Frank Dondero, Massachusetts Eye and Ear Infirmary, Boston; Vice-Chairman, Mr. Joseph Barry, Memorial Hospital, Worcester; Secretary, Miss Edith Hill, New England Baptist Hospital, Boston; Treasurer, Sister Mary Edward, St Vincent's Hospital, Worcester.

The program for the afternoon included an interesting and highly instructive talk by Dr. Jacob Harold Fine, chief of anaesthesia, Beverley Hospital. Dr. Fine spoke on the "Modern Concept of Anaesthesia." Miss Mae Bartley, director of the Beverley Hospital, welcomed the group for the afternoon. The next meeting of the Massachusetts Society of Hospital Pharmacists will be held on Wednesday, 19 March; meeting place not yet decided.

In a discussion carried on during the meeting, it was brought out that hospital pharmacists in Massachusetts do not come under the jurisdiction of the State Board of Pharmacy. Because of this fact it seems that no hospital pharmacist would be eligible for appointment as a State Board member. This Society is aiming to make it possible for hospital pharmacists in Massachusetts to be recognized, and to see that they are represented as a group by at least one hospital pharmacist on the State Board of Pharmacy. Mr. Murphy, of Massachusetts General Hospital, Boston, was ap-

pointed Chairman of a committee which will petition the new Governor to request that the law concerning this matter be reviewed and changed, if necessary, to include hospital pharmacists as members of the State Board.

MICHIGAN CHAPTER OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

A dinner was served to fifty members of the Michigan Chapter of the American Society of Hospital Pharmacists at their December meeting held at Harper Hospital, Detroit. Dr. Donald McKinley, assistant superintendent, Harper Hospital, welcomed the group, and spoke about the remarkable progress the organization has shown in promoting friendly relationship between hospital pharmacists and hospital superintendents by inviting the superintendents to attend all meetings.

Mr. Willis Gray, superintendent, William Jennings Hospital, was guest speaker. Mr. Gray presented a most interesting talk on "The Improvements of Standards of Hospital Pharmacies." He stressed the tremendous importance of a hospital formulary, and pointed out the economy derived from such formularies to both the hospital and its patients. Mr. William Eldred, Executive Committee chairman of the Detroit Retail Druggists Association, expressed his approval and his pleasure over the Society's plan of promoting a united front in pharmacy. A panel discussion followed in which hospital problems, and how to solve them was talked over. Many suggestions were offered by the members present. The evening ended with a movie shown by Miss Katie Lim. The movie was taken during the recent Institute on Hospital Pharmacy held in Ann Arbor.

THE ASSOCIATION OF HOSPITAL PHARMACISTS OF THE MIDWEST

The Association of Hospital Pharmacists of the Midwest met on Saturday, 11 January, at two P.M. at the Clarkson Memorial Hospital in Omaha, Nebraska. Eleven members were present. Miss Phyllis Platz presented a paper on "Choline and Methionine." Miss Nellie Nigro, guest of the evening, gave a report on her duties as an intern at St. Luke's Hospital in Cleveland. Mrs. Rodgers conducted a tour of her newly remodeled pharmacy. The next meeting is planned for 15 March at Bryan Memorial Hospital, Lincoln, Nebraska.

THE NEW JERSEY SOCIETY OF HOSPITAL PHARMACISTS

The New Jersey Society of Hospital Pharmacists met on 16 January at 8:40 P.M. Seven members were present to hear Mr. Charles E. Seal, chief pharmacist, Muhlenburg Hospital, Plainfield, speak on the "Drug Basket". Mr. Seal gave a brief summary of the system used in his hospital. His talk was followed by a discussion on central purchasing.

THE GREATER NEW YORK CHAPTER OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

The Greater New York Chapter of the American Society of Hospital Pharmacists met at Mother Cabrini Hospital in the Bronx on 15 January at 2:30 P.M. The meeting was presided over by Chairman Sister M. Etheldreda. A paper was presented by Sister Jeanette on "Pharmacy Equipment" in which the value of the "Oster Mixer" in the preparation of emulsions and the Swinny Filter Adaptor" in filtering of small quantities were discussed. Sister Bernardine discussed antibiotics, Sister Marion talked on some of the more recent protein hydrolysates.

Sister Alice Loretto reviewed the laws concerning barbiturates, and emphasized the precaution to be observed in dispensing thiouracil. Sister Donatus demonstrated a method of preparing bulk solutions of penicillin for hospital dispensing. Other subjects touched upon were ointment bases, and recent publications of the Federal Security Agency on judgments under the Federal Food, Drug, and Cosmetic Act.

THE PHILADELPHIA HOSPITAL PHARMACISTS ASSOCIATION

The Philadelphia Hospital Pharmacists Association met on 21 January to enjoy a dinner meeting given by Wyeth, Inc. Five new members were presented. With the collection of dues from all members of the A.Ph.A and the A.S.H.P. for 1947, the Philadelphia Hospital Pharmacists officially joined the National Organization as a group. Following the dinner a movie was presented showing the treatment of peptic ulcer.

The work of the Committee on Legislation was emphasized, and a meeting with the State Board of Pharmacy was planned for the end of the month. At that time, the Committee on Legislation will present a formal request for hospital pharmacists' representation on the Board of Pharmacy, and for an increase in the number of hours allowed apprentice pharmacists in hospital pharmacies.

NEW MEMBERS

ALABAMA

Paul P. Barry
633 S. Court
Montgomery, Ala.

ARIZONA

R. Becton Cameron
Vet. Adm. Hospital
Phoenix, Arizona

CALIFORNIA

Louis Brodie
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San Francisco, California

Charles Schwartz
1963-35th Ave.
San Francisco 6, Calif.

Richard S. Vowles
Letterman General Hospital
San Francisco, California

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Jerome Michael Yalon
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IOWA

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David E. Ott
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Ernest N. Rumble
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Michael Yargates Assoc.
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Jackson, Mississippi

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Grace Toshiko Matsumoto
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Mrs. Lynwood E. Shaw
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St. Joseph's Hospital
Omaha, Nebraska

Miss Herbert
St. Joseph's Hospital
Omaha, Neb.

Miss H. Redford
College of Pharmacy
Lincoln, Neb.

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Manchester, N.H.

Clifton F. Lord Jr.
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Pitman, New Jersey

Mary Cecilia Miserendino
Cooper Hospital
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Parke Richards Jr. Assoc.
Hoffman-La Roche Inc.
Nutley 10, N.J.

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Eli Stevens
510 - 73rd. St.
Brooklyn 9, N.Y.

NORTH CAROLINA

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Cabarrus County Hosp
Concord, N. C.

OHIO

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Toledo Hospital
Toledo, Ohio

Ruth E. Burgie
Riverside Hospital
Toledo, Ohio

Arthur James Davis
2021 Worth Ave.
Norwood, Ohio

Carl H. F. Lembke
St. Elizabeth's Hosp.
Youngstown, Ohio

PENNSYLVANIA

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Reading, Penn.

Wilber C. Anderson
Vet. Adm.
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Philadelphia, Penn.

Mary D'Abbruzzio
Wills Eye Hospital
Philadelphia, 30, Penn

Ida Sorokin Champaine
Babies Hospital
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Donald Davies
Reading Hospital
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Salvatore M. Fortino
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Jacob Greenblatt
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Mrs. Carl Hicks
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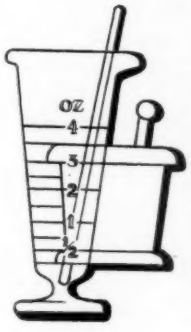
Seattle, Washington

WEST VIRGINIA

Gladys E. Koether
Newton D. Baker V. A. Center
Martinsburg, West Virginia



QUERIES, continued from page 27

"The Merck Report" for April, 1945. Dr. Wyss in an article in "J.Am.Pharm.A.-Practical Edition", on page 8 of the January 1945 issue under "Reference and Annotations", lists various methods for testing pH and sources from which necessary supplies are available.

For routine checking you might try the solution called Universal Indicator marketed by Eastman Kodak Company, Rochester 4, N.Y.

It is not at all difficult to prepare a set of colors by selecting indicators with suitable color changes so that successive indicators may be added to same test tube of material and save both time and material. See, "Merck's Index", Edition 5, page 597.

. TIMELY DRUGS, continued from page 31

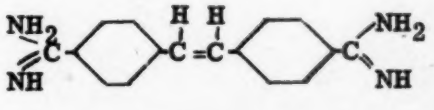
anemias. The recommended dosage is 1 or 2 capsules after each meal until there is adequate cellular and hemoglobin regeneration.

STILBAMIDINE . . . known chemically as 4,4-diamidinostilbene, has been used successfully in the treatment of multiple myeloma according to a report by Isidore Snapper, M.D. in the J.A.M.A., 133:157, January 18, 1947. In most of the fifteen or more cases treated by Dr. Snapper he administered the drug intravenously, using the intramuscular route only when veins were not readily available for injection. The dosage schedule was as follows: A first injection of 50 mg. was given, followed two days later by an injection of 100 mg. Thereafter 150 mg. was given, usually every other day but in some cases daily. Although at first the treatment was limited to fifteen injections of 150 mg., in later cases, the injections were continued until a total dose of 4 to 5 grams had been given.

Side effects include a fall in blood pressure which may lead to sweating, dizziness, nausea and collapse. For this reason it has been advised that 0.25 cc. a 1:2000 solution of epinephrine be injected subcutaneously ten minutes before the injection of stilbamidine. To a few patients who experienced sweating and dizziness after stilbamidine injections, the administration of from 0.3 to 0.4 mg. of atropine sulfate before the injections was used with good results. A late sign of intoxication, dissociated anesthesia in the area supplied by the trigeminal nerve, may occur several months after treatment.

Improvement starts soon after the inception of treatment, often beginning after the third or fourth injection. An important feature of the treatment includes a low protein diet. No results have been obtained when the treatment has been accompanied by a diet high in protein. The treatment merely checks the disease and does not cure it.

For intravenous injection, stilbamidine was dissolved in sterile distilled water. For intramuscular injection the compound was dissolved in 5 cc. of 2 percent solution of procaine hydrochloride. Stilbamidine is incompatible with sodium chloride. A procedure for the preparation of stilbamidine injection is described in the "Notes and Suggestions" section of this issue. Stilbamidine may be obtained from Merck and Company Inc. for investigational use only.



STILBAMIDINE

POSITIONS in hospital pharmacy

OHIO . . . Opening for assistant pharmacist, 300 bed hospital, 44 hour week, 8:30 to 5:00. Work consists of filling prescriptions and manufacturing. Salary open. Write to Chief Pharmacist or Personnel Director. St. Elizabeth Hospital, Youngstown 4, Ohio.

MICHIGAN . . . Florence Crittenton Hospital, 1150 Tuxedo Avenue, Detroit 6, wishes to employ a woman pharmacist, preferably one who is at least 25 years of age and who has had previous hospital experience. At present the work week is 44 hours with a possibility of a 40 hour week in April, no Sunday or evening duty, six legal holidays yearly, two weeks paid vacation after one year's service and a salary of $240.00 monthly. For additional information please write to Ellen L. Stahlnecker, Superintendent.

U.S. PUBLIC HEALTH SERVICE . . . A competitive examination for appointment in the Regular Corps in grades of Junior Assistant Pharmacist (2nd Lieutenant), Assistant Pharmacist (1st Lieutenant) and Senior Assistant Pharmacist (Captain) will be held during the period March 17 - April 16, 1947.

An applicant for the grade of Junior Assistant Pharmacist must be a citizen of the United States, must present a diploma of graduation from a recognized pharmacy school and must satisfactorily pass a physical examination performed by medical officers of the U. S. Public Health Service. Applications for this grade will also be considered from senior students and those who successfully pass the examination will be considered for appointment after their graduation. Applicants for the grade of Assistant Pharmacist must meet the above mentioned requirements and must have had an additional three years of post-graduate professional training or experience. Applicants for the grade of Senior Assistant Pharmacist must meet the requirements for the grade of Assistant Pharmacist and must have had an additional four years of post-graduate training or experience.

Entrance pay for Junior Assistant Pharmacist with dependents is $3,391 a year, for Assistant Pharmacist with dependents is $3,811 a year, and for Senior Assistant Pharmacist with dependents is $4,351 a year. Promotions are at regular intervals up to and including the grade of Pharmacist Director which corresponds to full Colonel at $8,551 a year. Retirement pay at age 64 is $4,950 a year. Full medical care, including disability retirement at three-fourth's pay is provided. All expenses of official travel are paid by the Government. Thirty days' annual leave with pay is provided. All commissioned officers have full military status for the duration of the present war.

Examinations will be oral and written. The oral and written examinations will be given during the period March 17 through April 16, 1947, at places mutually convenient to the applicant and the Service. Application forms and additional information may be obtained by writing to the Surgeon General, U.S. Public Health Service, Washington 25, D.C.

Those desiring to make application either for the Junior Assistant, Assistant, or Senior Assistant grades must mail the completed applications so as to be received not later than March 15, 1947, by the Surgeon General, U. S. Public Health Service.

POSITION WANTED . . . Andrew J. Darling, registered pharmacist employed at Rochester General Hospital, Rochester, N.Y. is interested in taking charge of, or securing a position as Hospital Pharmacist, preferably in the Southwest. Mr. Darling has been employed as Assistant Pharmacist at Rochester General Hospital for fifteen years. Write to Mr. Darling at 501 W. Main St., Rochester, N.Y.